

Rhodora

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MERRITT LYNDON FERNALD, Editor-in-Chief

CHARLES ALFRED WEATHERBY
ALBERT FREDERICK HILL
STUART KIMBALL HARRIS

} Associate Editors

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THE NEW ENGLAND BOTANICAL CLUB

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THE SO-CALLED WOODSIA ALPINA IN NORTH AMERICA

A. E. PORSILD

It has, for some time, been clear to the writer that the plant which in temperate eastern North America has long passed as *Woodsia alpina* is really abundantly distinct from the circumpolar, arctic-alpine plant which alone should bear that name.

The latter is a somewhat variable species which, by some European authors¹, has been considered a variety or subspecies of the circumpolar *W. ilvensis* (L.) R. Br. Thus Robert Brown (Linn. Soc. Trans. XI, 172 (1815)), in discussing the relation of *W. ilvensis* to *W. hyperborea* [a *nomen confusum* for *W. alpina*] states:

"These two plants are indeed so nearly related, that I find myself unable to construct for them clear specific characters; and therefore, in proposing them here as distinct species, I am, for want of sufficient materials to determine the question, rather following the prevailing opinion than my own."

Brown's description, which follows, clearly shows his difficulty:

"*ilvensis*. 1. *W.* frondibus bipinnatifidis, pinnis oblongis, pinnulis confluentibus multifloris: inferioribus subrepandis: infimis subaequalibus. . . .

Habitat in rupibus Europae et Americae borealis

hyperborea. 2. *W.* frondibus pinnatis, pinnis triangularibus oblongisve inciso-pinnatifidis: lobis integerrimis paucifloris: antico baseos productiore. Tab. XI. . . .

Habitat in Europae alpihus"

The nomenclature of the latter species is as follows:

WOODSIA ALPINA (Bolton) S. F. Gray, Nat. Arr. Brit. Pl. 2:

¹ Hartman, Skandinaviens Flora p. 536 (1879); Gelert in Ostenfeld, Flora Arctica p. 7 (1902); Simmons, Fl. Ellesmereland 183 (1906); Hegi, Fl. v. Mittel-Europa 1: 13 (1906).

17 (1821); *Acrostichum alpinum* Bolton, Fil. Brit. 76 (1790); *W. hyperborea* R. Br. as to plant, not as to basonym, *Acrostichum hyperboreum* Liljebl. Sv. Fl. 307 (1792); Fl. Dan. Tab. 2921 fig. 2.

Holmberg (Skandinaviens Flora 1: 4 (1922)) gives the following description (here translated from the Swedish text):

"**W. alpina** (Bolton) S. F. Gray . . . *Stipe usually 1/3 to 1/2 as long as the lamina; lamina hairy on the underside but without chaff; length of the primary segments not, or but slightly, greater than their breadth.*— Usually lower (3.0 to 15.0 cm.) and fresher green than preceding [*W. ilvensis*]. Lamina narrowly linear-lanceolate, 1.0–2.0 cm. broad, broadest at or above the middle, sparingly hirsute, sometimes without chaff. Primary segments short, broadly ovate, often deeply lobed, with 1–3 (–4) entire secondary segments on each side . . . On rocks (preferably calcareous) chiefly in the mountains and in alpine places."

To Holmberg's description should be added that the stipe is straw-colored to pale brown, *dull, not at all shiny*, always more or less chaffy. The fronds are rather stiffly erect, usually forming small, dense and firm tufts; the sori as a rule are confluent. In 21 typical specimens selected at random in the Gray Herbarium and in the National Herbarium of Canada, the fronds average 8.1 cm. in length and 1.45 cm. in breadth, near or slightly above the middle, while the average diameter of the stipe just above the joint is 1.0 mm. Habitat: dry, sunny places such as rock talus etc. Distribution: Circumpolar, arctic-alpine. Northern East and West Greenland across arctic Canada to Yukon and Alaska, arctic and alpine Asia and Europe, Iceland. The following specimens in the Gray Herbarium (G) and the National Herbarium of Canada (Can) are representative:

SWEDEN: Uppl. Djurö Sⁿ, Ranmarö, July 10, 1922, *A. Hülphers* (Can). ICELAND: Thingvellir, *Edith Scamman*, No. 1202 (G). W. GREENLAND: Umiviarfik Fj., 71° 56' N., *M. P. Porsild*, Sept. 7, 1934 (G); Kangerdluarsuk, 74° 18' N. *Ryder* (Can). HUDSON STRAIT: Nottingham Island, *R. Bell* (Can 28,354); Coats Isl., *A. E. Porsild*, 5862 (Can). KEEWATIN DISTRICT: Baker Lake, *A. E. Porsild*, 6075 (Can). MACKENZIE DISTRICT: East slope of Richardson Mts. west of the Mackenzie Delta, *A. E. Porsild*, 6744 (Can). YUKON TERRITORY: Canol Road, Rose-Lapie Pass, *A. E. Porsild* & *A. J. Breitung*, 10,103 (Can). ALASKA: Healy, *J. P. Anderson* 5772 (Can); Norton Sound, *Pastolik, A. E. & R. T. Porsild*, 889 (Can).

The plant of temperate eastern North America differs consistently from the arctic-alpine, circumpolar plant by its non-

confluent sori, reddish-brown, shiny stipes and rhachis which are almost completely devoid of chaffy scales. Also it is taller and more delicate and the fronds are somewhat flexuous. Unlike the arctic-alpine plant it prefers moist, shady places and is invariably found on calcareous soil. In 29 typical specimens selected at random in the Gray Herbarium and in the National Herbarium of Canada the fronds average 12.4 cm. in length and 1.58 cm. in breadth well above the middle while the average diameter of the stipe just above the joint is 0.75 mm.

In 1940, Mr. C. A. Weatherby (Am. Fern. Journ. 31, no. 2: 62 (1941)), in the herbarium of Mount Allison University of Sackville, New Brunswick, discovered a number of Lawson's fern types, among them the type of *Woodsia glabella* β *Belli* Lawson. Of it Mr. Weatherby, l. c., writes as follows:

"Lawson was evidently in much doubt as to this specimen. A slip accompanying it reads: "*Woodsia laetevirens* var. of *glabella* ??, *ilvensis* ? or *hyperborea* ??," and finally, in pencil, "*hyperborea* according to Eaton". Lawson eventually accepted Eaton's determination and reduced his variety (Trans. Bot. Soc. Edinburgh 8: 108 (1866)). The specimen is a rather stout individual of *W. alpina*."

A photograph kindly presented by Mr. Weatherby shows that Lawson's plant is indeed our plant, the name of which becomes:

WOODSIA Belli (Lawson), n. comb. *W. glabella* β *Belli* Lawson, Edinburgh New Phil. Journ. n. s. 19: 281 (1864); *W. alpina* of Gray's Manual, not *W. alpina* (Bolton) S. F. Gray (at least in part). TYPE: Dartmouth River, 20 miles from mouth, Gaspé, C. E. [Canada East], July 3, 1862, John Bell. Habitat: Shaded, moist places on calcareous rocks. Distribution: Lab., Nfld., Que., south to northern New Brunswick and northern Vermont; the Adirondacks, N. Y. and west to Lake Superior. The following specimens in the Gray Herbarium (G) and the National Herbarium of Canada (Can) are typical: LABRADOR: Nain, 56° 30' N., V. C. Wynne-Edwards, No. 7531 (Can). NEW BRUNSWICK: Aroostook Falls, John Macoun, No. 22,700 (Can). QUEBEC: BONAVENTURE co., Grand Cascadepedia R., J. F. Collins & M. L. Fernald, No. 7 (G and Can); RIMOUSKI co., crevices of limestone-conglomerate, north side of the "Haystack" west of Bic, M. L. Fernald & J. F. Collins, No. 831 (G and Can); GASPÉ co., River Ste. Anne des Monts, M. L. Fernald & J. F. Collins, No. 292 (G and Can). ONTARIO: Kakabeka Falls, Kaministiquia R., Red Rock near C. P. R. station, John Macoun, No. 28,351 (as *W. glabella*) (Can); Thunder Bay, Lake Superior, July 31-Aug. 6, 1926, F. Morris, No. 117,370 (Can). MICHIGAN:

Keweenaw Co., Eagle Harbor, *M. L. Fernald & A. S. Pease*, No. 3051 (G). MINNESOTA: Cook Co., south side of Clearwater Lake, *F. K. Butters & M. N. Buell*, No. 397 (G).

The characters distinguishing *W. alpina* from *W. Belli* may be summarized as follows:

	<i>W. alpina</i>	<i>W. Belli</i>
Stipe:	straw-coloured to pale brown, dull, \pm chaffy	reddish-brown, shiny, almost devoid of chaff
Average diam. just above joint:	1.0 mm.	0.75 mm.
Frond:	broadest above the middle, stiffly erect,	broadest at the middle, delicate, flexuous
Average dimensions of frond:	8.1 cm. long; 1.45 cm. wide	12.4 cm. long, 1.58 cm. wide.
Sori:	usually confluent	rarely confluent.

NATIONAL MUSEUM OF CANADA

DISTICHLIS SPICATA IN AUSTRALIA.—When publishing in 1943 (Bull. Torr. Bot. Club **70**: 633–650) on “The North American Variations of *Distichlis spicata*”, the writer confined the range for the composite species to North and South America. It was also stated that *Distichlis* “is represented by *D. distichophylla* (Labill.) Fassett in the South Australian area.” This last conclusion was drawn entirely from the literature on the genus, since at that time no Australian material had been examined. Subsequent study of sheets of *D. distichophylla* in the Herbarium of the New York Botanical Garden show it to fall well within the specific limits of *D. spicata*. Although the relationship within *D. spicata* must remain obscure until the South American varieties are clarified, in order to redefine the range of the species and also to bring the Australian material into its proper alignment in the genus, the following combination is important:

DISTICHLIS SPICATA (L.) Greene var. **distichophylla** (R. & S.) comb. nov. *Uniola distichophylla* R. & S. Syst. Veg. **2**: 596. 1817. *Distichlis distichophylla* Fassett, RHODORA **27**: 71. 1925.

Apparently *Distichlis* is native in Australia for a specific distribution involving North and South America and Australia is not unusual. The geographical varieties that compose both *Scirpus americanus* Pers. and *S. cernuus* Vahl encompass the same area.—A. A. BEETLE, Division of Agronomy, University of California, Davis.



Photo, B. G. Schubert.

RUBUS AKERMANI (floricane), all figs. from TYPE: FIG. 1, portion of cane, $\times 1$; FIG. 2, portion with 3-fruited spurs, $\times \frac{1}{3}$; FIG. 3, lower surface of leaf, $\times 10$; FIG. 4, summit of pedicel and base of calyx, $\times 5$

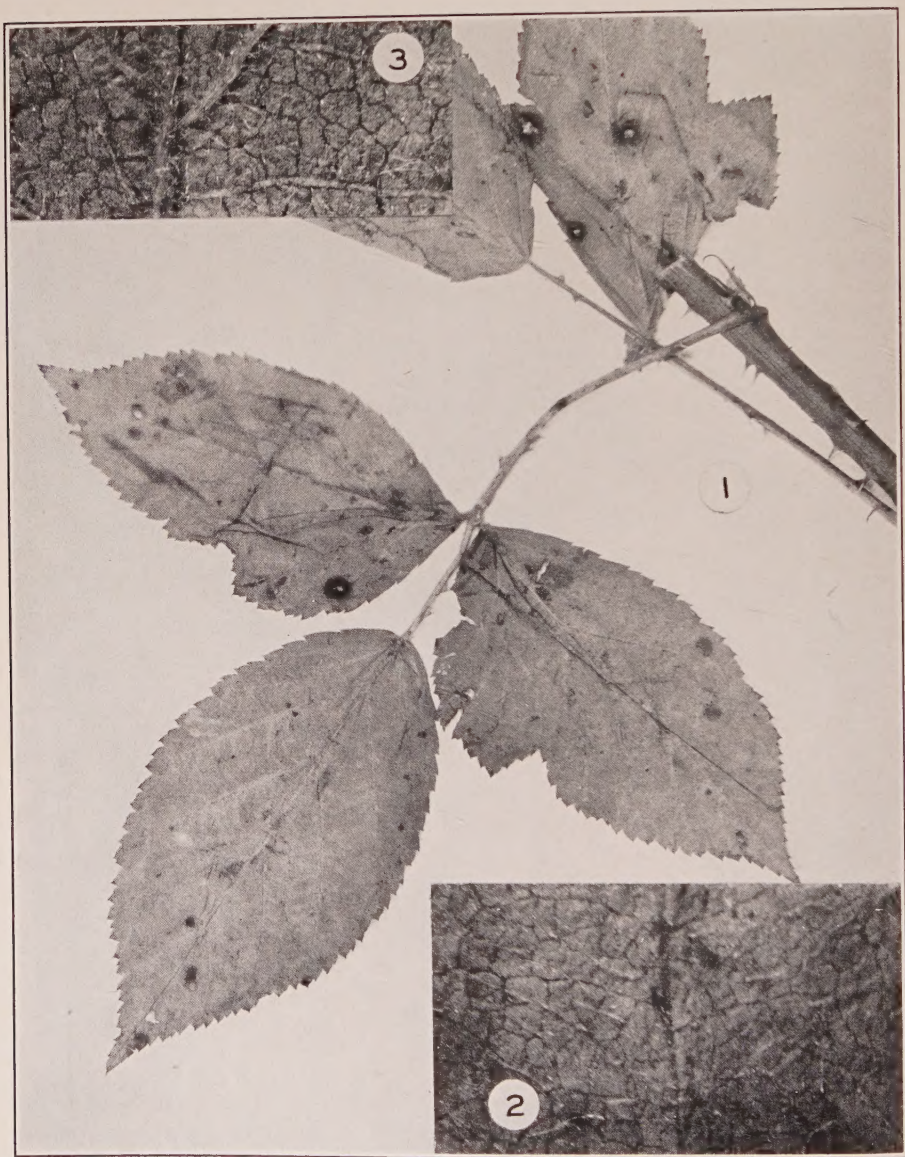


Photo. B. G. Schubert.

RUBUS AKERMANI (primocane), all figs. from TYPE: FIG. 1, portion of cane and typical leaf, $\times 1$; FIGS. 2 and 3, upper and lower leaf-surfaces, $\times 10$

BOTANICAL SPECIALTIES OF THE SEWARD FOREST
AND ADJACENT AREAS OF SOUTH-
EASTERN VIRGINIA

M. L. FERNALD

(Continued from page 142)

PERSEA BORBONIA (L.) Spreng., forma **pubescens** (Pursh), stat. nov. *Laurus caroliniensis* β . *pubescens* Pursh Fl. Am. Sept. i. 275 (1814). *P. caroliniensis* α . Nees, Syst. Laur. 150 (1836). *Tamala palustris* Raf. Sylv. Tellur. 137 (1838). *P. caroliniensis* β . *pubescens* (Pursh) Meisn. in DC. Prodr. xv¹. 51 (1864). *P. caroliniensis*, var. *palustris* (Raf.) Chapm. Fl. So. U. S. 393 (1860). *P. pubescens* (Pursh) Sarg. Silva N. A. vii. 7, t. 302 (1895). *Tamala pubescens* (Pursh) Small, Fl. Se. U. S. ed. 2: 822 and 1375 (1913). *P. palustris* (Raf.) Sarg. in Bot. Gaz. lxvii. 229 (1919).

After closely watching, collecting, and intensively studying the Red Bay, as it occurs in eastern Virginia, I have abandoned the futile attempt to see two species or two varieties in the glabrous-leaved material and that with leaves densely pubescent beneath, and I cannot look upon them as anything but glabrous and pubescent forms of one species, *P. Borbonia* (L.) Spreng. The bibliography of the latter is

P. BORBONIA (L.) Spreng. Syst. ii. 268 (1825). *Laurus Borbonia* L. Sp. Pl. 370 (1753). *L. axillaris* Lam. Encycl. iii. 453 (1789). *L. caroliniensis* Michx. Fl. Bor.-Am. i. 245 (1803). *L. caroliniana* Poir. in Lam. Encycl. Suppl. iii. 323 (1813). *L. caroliniensis*, α . *glabra* Pursh, Fl. Am. Sept. i. 276 (1814). *P. caroliniensis* (Michx.) Nees, Syst. Laur. 150 (1836). *Tamala Borbonia* (L.) Raf. Sylv. Tellur. 136 (1838). *P. caroliniensis*, α . *glabriuscula* Meisn. in DC. Prodr. xv¹. 51 (1864). *P. palustris*, forma *laevifolia* Fernald in RHODORA, xlv. 399 (1942).

Hoping against hope that, with most of our American herbarium material interned (or destroyed?) in Holland, there might be some erudite difference which I could not discover, I went so far in 1942 as to distinguish a glabrous-leaved form of the pubescent-leaved *Persea palustris*, although it already had a plethora of names. Now, having to dispose of *Laurus axillaris* Lam., a photograph of the type of which is before me, I have again sought characters aside from the superficial and very obvious and variable one of pubescence. In the first place,

Laurus axillaris Lam. is not, as indicated by *Index Kewensis*, *Litsea geniculata* (i. e. *L. aestivalis* supra); the type is a very immature branch of *Persea Borbonia* with very young (therefore short-peduncled) inflorescences. It was sent by Fraser from South Carolina and Lamarck merely suggested its relationship to the *Litsea*: "*An Laurus geniculata* Walt." In the second place, I can get nothing stable out of the supposed specific differences: *P. Borbonia*, according to Sargent's *Silva*, with "Peduncles short; leaves oblong or oblong-lanceolate, obscurely veined, glabrous; branchlets puberulous"; *P. palustris* (or *pubescens*) with "Peduncles elongated; leaves oval or lanceolate, conspicuously veined, tomentose on the lower surface; branchlets coated with tomentum".

Persea Borbonia, according to Sargent, with "Peduncles short; leaves oblong or oblong-lanceolate, obscurely veined", started in L., Hort. Cliff. 154 (1737), and by Linnaeus was described as having the *peduncles long* (*pediculis longis*), instead of "short", the *leaves lanceolate*, instead of "oblong or oblong-lanceolate" and the *veins transverse* (*evident to Linnaeus*)! The full account was:

3. LAURUS foliis lanceolatis, nervis transversalibus, fructus calicibus baccatis.

Borbonia fructu oblongo nigro, calyce coccineo. Plum. gen. 4?

Laurus caroliniensis, foliis acuminatis, baccis coeruleis, pediculis longis rubris insidentibus. Catesb. ornith. 63, t. 63.

Crescit in Carolina.

In *Species Plantarum* (1753), under *Laurus Borbonia*, the only changes were the dropping of the reference to Plumier, the adding of references to Gronovius, Virg. 46, and to Royen, and the change to "*Habitat in Carolina, Virginia*". According to Daydon Jackson there was no specimen in the Linnean Herbarium in 1753. We can, of course, not get at the Hortus Cliffortianus material now, but Catesby's plate is a definite, though much distorted representation, with petioles often much longer than in nature and obviously not differentiated by the artist from the "foot-stalks [peduncles] of two or three inches long". "These Trees . . . not common in *Virginia*, except in some places near the Sea. In *Carolina* . . . every where seen, particularly in low swampy lands." In the collections represented in the Gray Herbarium nearly glabrous-twigged and



Photo. B. G. Schubert.

RUBUS CATHARTIUM (floricane), all figs. from TYPE: FIG. 1, portion of cane in fruit, $\times 1$; FIG. 2, lower surface of leaf, $\times 10$; FIG. 3, summit of pedicel and base of calyx, $\times 5$

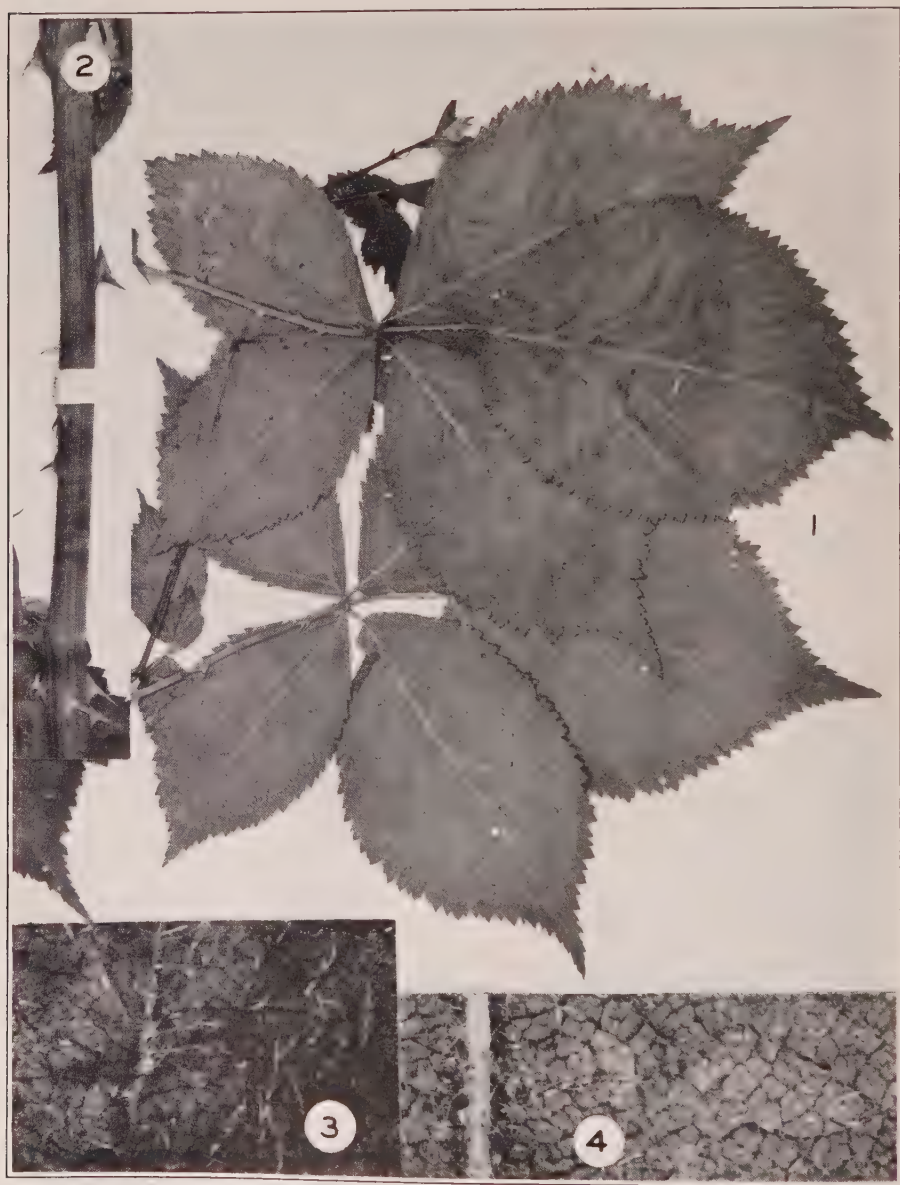


Photo. B. G. Schubert.

RUBUS CATHARTIUM (primocane), all figs. from TYPE: FIG. 1, two leaves, $\times 1$; FIG. 2, portion of cane, $\times 1$; figs. 3 and 4, upper and lower leaf-surfaces, $\times 10$

-leaved branches may have peduncles only 1 cm. long or up to the length shown in Catesby's plate. Similarly, branches with densely velvety cortex and lower leaf-surfaces (merely taking the Virginian series) may have fruiting peduncles anywhere from 1.5-7 cm. long. As forms the essentially glabrous and the heavily pubescent extremes are striking, but there are altogether too many transitional trees for them to be called geographic varieties and surely not different species. It is inconvenient that the very pubescent form is much commoner than the glabrescent type of the species. At least, in the material which has accumulated in the Gray Herbarium since the bulk of specimens was sent on loan to Utrecht, the heavily pubescent form outnumbers the other two to one.

**MAGNOLIA VIRGINIANA* L., var. *AUSTRALIS* Sargent in Bot. Gaz. lxvii. 231 (1919). Range extended from southeastern North Carolina northward into southeastern Virginia. DINWIDDIE Co.: along stream near Petersburg, May 13, 1935, *E. Puette & M. Ellyson*. PRINCESS ANNE Co.: rich pine woods, Munden, *Fernald & Griscom*, no. 4408, with note: "Trunk 1 ft. in diameter; trees 30 ft. high."

This southern large extreme with silky white pubescence on new branchlets, petioles and often the lower side of the leaf, was pronounced by Sargent a larger tree than glabrous true *M. virginiana* and "Swamps in the neighborhood of Wilmington, North Carolina, is the most northern station from which I have seen specimens of this tree". The Munden material is thoroughly typical; that from Petersburg even more heavily pubescent than any from Florida to Louisiana.

In the Gray Herbarium there is extreme material of var. *australis* from Tyrrell Co., North Carolina: south of Columbia, *Godfrey*, no. 3928. This station is on Albemarle Sound, only 40 miles south of Munden, whereas Wilmington is nearer 190 miles from Munden.

**CRATAEGUS AESTIVALIS* (Walt.) T. & G. PRINCESS ANNE Co.: low woods along Back Bay, Long Island, no. 10,671. The first from north of South Carolina.

C. FLAVA Ait. NANSEMOND Co.: dry pine and oak woods about 2 miles southeast of Cleopus, no. 9578 (vegetative sprouts with characteristic glandular-margined stipules). ISLE OF WIGHT Co.: dry sandy woods northwest of Raynor, no. 14,339; border of dry sandy woods south of Zuni, no. 6818. SOUTHAMPTON Co.:

about Franklin, June, 1893, *Heller*, no. 978 as *C. glandulosa* Moench, the identification changed by Eggleston to *C. flava*; frequent on higher ridges, Franklin, Aug., 1908. *Eggleston*, no. 4011, with the note: "Only known Manual station". GREENSVILLE Co.: rich deciduous woods by Metcalf Branch, east of Emporia, no. 8293. BRUNSWICK Co.: wooded swamp along Quarrel's Creek, "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,710.

Although included by Eggleston in Britton & Brown, Ill. Fl. ed. 2, from southeastern Virginia, *C. flava* is given by Tidestrom in Small's Manual as coming north only to Georgia.

GEUM CANADENSE Jacq., var. BREVIPES Fernald in RHODORA, xxxix. 410, pl. 479, figs. 1-3 (1937). This characteristic plant, heretofore known only from the bottoms of the Nottoway, is now found along Roanoke drainage in southwestern BRUNSWICK Co.: bottomland woods along Poplar Creek, southwest of Ebony, no. 14,619. See p. 97.

RUBUS (§ FLAGELLARES) CONNIXUS Bailey, Gent. Herb. v. 273, fig. 113 (1943). Range extended 45 miles southeastward from the type-locality (Keysville, Charlotte Co.) to eastern BRUNSWICK Co.: trailing in argillaceous flatland along Sawmill Branch, Seward Forest, near Triplett, no. 14,617.

The specimens closely match Bailey's figure and his description, including (for most leaves) his "leaves of primocanes . . . leaflets . . . not subcordate at base", although one leaf retained at the Gray Herbarium fits Bailey's contradictory key-character: "Odd or terminal leaflet of primocane leaves . . . more or less cordate".

R. (§ CUNEIFOLIUM) SEJUNCTUS Bailey, Gent. Herb. v. 201, fig. 205 (1943). To the original stations in Southampton Co. add one in BRUNSWICK Co.: dry thicket, Seward Forest, near Triplett, no. 14,611. Very abundant; seen over much of the region. See p. 94.

*RUBUS (§ THOLIFORMES) **Akermani**, sp. nov. (TAB. 890 et 891), valde arcuans deinde depressis cannis tholos formantibus, cannis vel ramibus ad 2-3 m. longis apicibus prostratis rare radi-
cantibus; primocannis simplicibus 4-8 mm. diametro glabris remote armatis; aculeis rectis horizontalis vel vix recurvatis subulatis 3-6 mm. longis basi 2-5 mm. latis; primocannae foliis ternatis firmis supra strigoso-pilosis subtus dense tomentulosis; foliolis ovatis acuminatis duplicato serratis basi subrotundatis, foliolo terminali 5-8 cm. longo 2.5-5.5 cm. lato, petiolulo armato 1.5-2.5 cm. longo; floricanis intricate ramosis ramibus porrectis vel divergentibus rigidis; floricanne foliis ternatis, foliolis

ellipticis vel anguste cuneato-obovatis acutis vel obtusis subtus pilosis, foliolo terminali 1.5–6 cm. longo; inflorescentiis perbrevibus corymbiformibus foliosis 1–4-floris, bracteis trifoliolatis vel superne simplicibus quam pedicellis superantibus; pedicellis villosis plerumque inarmatis adscendentibus 0.7–1.8 cm. longis; calycis pilosis inarmatis segmentis deinde reflexis; fructibus ad 1.8 cm. diametro.—Brunswick and Greenville Counties, VIRGINIA: springy sphagnum and argillaceous bog, Ram-hole Swamp, Seward Forest, near Triplett, Brunswick Co., June 22, 1944, *Fernald* (and *Lewis*)¹, no. 14,614 (TYPE in Herb. Gray., ISOTYPE in Herb. Phil. Acad.); damp thicket northeast of Ebony, Brunswick Co., June 21, 1944, *Fernald* (and *Lewis*), no. 14,613; dry woods near Mitchell's Millpond, west of Brink, Greenville Co., June 29, 1944, *Fernald* (and *Lewis*), no. 14,618.

Rubus Akermani, with which it is a great pleasure to associate the name of ALFRED AKERMAN, Director of the Seward Forest, to whom I am under great obligation, is a relatively unique species. Its doming and long-arching habit is striking, as are the very leafy few-flowered and -fruited corymbs with the fruits mostly hidden among the leaves. It is much coarser than the species with slender and closely trailing floricanes (the Dew-berries), and I am not able to place it definitely near any described species. See p. 95.

*R. (§ THOLIFORMES) **cathartium**, sp. nov. (TAB. 892 et 893), valde arcuans cannis tholos altos formantibus, cannis vel ramibus ad 2.5 m. longis apicibus prostratis plus minusve radicantibus; primocannis simplicibus vel ramosis longe arcuatis flexuosis subteretibus glabris ad 7 mm. diametro armatis; aculeis oblique deltoideo-subulatis recurvatis vel unguiculatis 3–5 mm. longis basi 3–6 mm. latis; primocannae foliis imis ternatis mediis superioribusque quinatis submembranaceis supra strigoso-pilosis subtus piloso-tomentulosis pilis fulvescentibus; petiolo valde unguiculato-armato; foliolis ovatis vel elliptico-ovalibus grosse duplicato-serratis acuminatis basi rotundatis, foliolo terminali 8–14 cm. longo 5–10 cm. lato, petiolulo armato 1.5–3 cm. longo; floricanis subsimplicibus subrigidibus; foliis membranaceis ternatis, petiolo piloso sparse stipitato-glanduloso setosisque, foliolis rhomboideo-oblongis acutis vel subacutis duplicato serratis 4–7 cm. longis; racemis corymbiformibus 1–7-floris, bracteis imis ternatis supernis simplicibus quam pedicellis valde brevioribus; pedicellis erectis filiformibus pilosis plus minusve stipitato-glandulosis setosisque plerumque 2–4 cm. longis; calycis pilosis plus minusve glanduliferis deinde reflexis.—

¹ *Lewis* did not take specimens.

Brunswick County, VIRGINIA: dry thickets near old Taylor Place, Seward Forest, near Triplett, June 23, 1944, *Fernald* (and *Lewis*), no. 14,615 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.); dry thicket, Old Chamblis Place, Seward Forest, June 20, 1944, *Fernald* (and *Lewis*), no. 14,612.

Rubus cathartium (*cathartium*, of buzzards, from *Cathartes*, the Turkey-buzzard¹ because, in collecting the type (see p. 98), we seriously disturbed a brood of young buzzards whose home was in the shed near-by) is, like *R. exsularis* Bailey, Gent. Herb. v. 386, fig. 175 (1943), "a rampageous very prickly woody grower making deep tangled mounds or heaps" (*Bailey*, p. 243), "a fearsome briar to handle"² (his p. 388), and the pubescence, glandularity and prickles are similarly distributed. The pedicels in the New York *R. exsularis* are illustrated as much shorter than and overtopped by the leafy bracts. In *R. cathartium* they greatly overtop their subtending bracts, thus suggesting the inflorescences of *R. flagellaris*. From the latter *R. cathartium* is quickly distinguished by its coarse and doming habit, the densely velvety lower surfaces of the primocane-foliage, the broad-based prickles and the glandular inflorescence.

*R. (§ THOLIFORMES) *Sewardianus*, sp. nov. (TAB. 894 et 895), valde arcuans cannis tholos formantibus, cannis vel ramibus ad 2 m. longis apicibus longe arcuatis; primocannis deinde divergente ramosis 5-7 mm. diametro glabris vel apice pilosis remote armatis; aculeis rectis horizontalis subulatis 3-5 mm. longis basi 2-3 mm. latis; primocannae foliis ternatis vel quinatis membranaceis supra remote strigosis subtus tomentulosis, petiolo unguiculato-armato superne piloso; foliolis ovatis acuminate duplicato serrato-dentatis basi rotundatis, foliolo terminali 8-12 cm. longo 5-7.5 cm. lato basi cordato, petiolulo piloso armato 2.5-3 cm. longo; floricanis inextricabiliter divergenterque ramosis valde arcuato-depressis ramis unguiculato-aculeatis; floricanne foliis ternatis, foliolis anguste elliptico-ovalibus acuminatis duplicato serratis 4-7 cm. longis subtus minute pilosis; inflorescentiis breviter racemoso-corymbosis 2-8-floris;

¹ I have been told that the specific name *cathartium* (of turkey-buzzards) will inevitably be misspelled and interpreted as coming from *catharticum*, a cathartic. As a matter of fact, the very rich and juicy fruit of *Rubus cathartium* would make the finest of blackberry-cordial, the famous old domestic cure for diarrhoea. Turkey-buzzards, unless scrupulously cleaned and thoroughly cooked before eating, might give uncomfortable results.

² In his rather unconventional descriptions of "rampageous" and "fearsome" briars Bailey consistently uses in his Latin diagnoses the Latin ablative "*canis*," spelled like the classical nominative for a dog, instead of the more conventional *cannis*, from *canna*, a cane. Sometimes the scratchy and "fearsome" canes certainly suggest a dog.



Photo. B. G. Schubert.

RUBUS SEWARDIANUS (floricane), all figs. ($\times 1$) from TYPE: FIG. 1, primary axis, showing straight prickles; FIG. 2, upper fruiting branchlets; FIG. 3, portion of lateral branch, showing unguiculate prickles, and of leafy branch

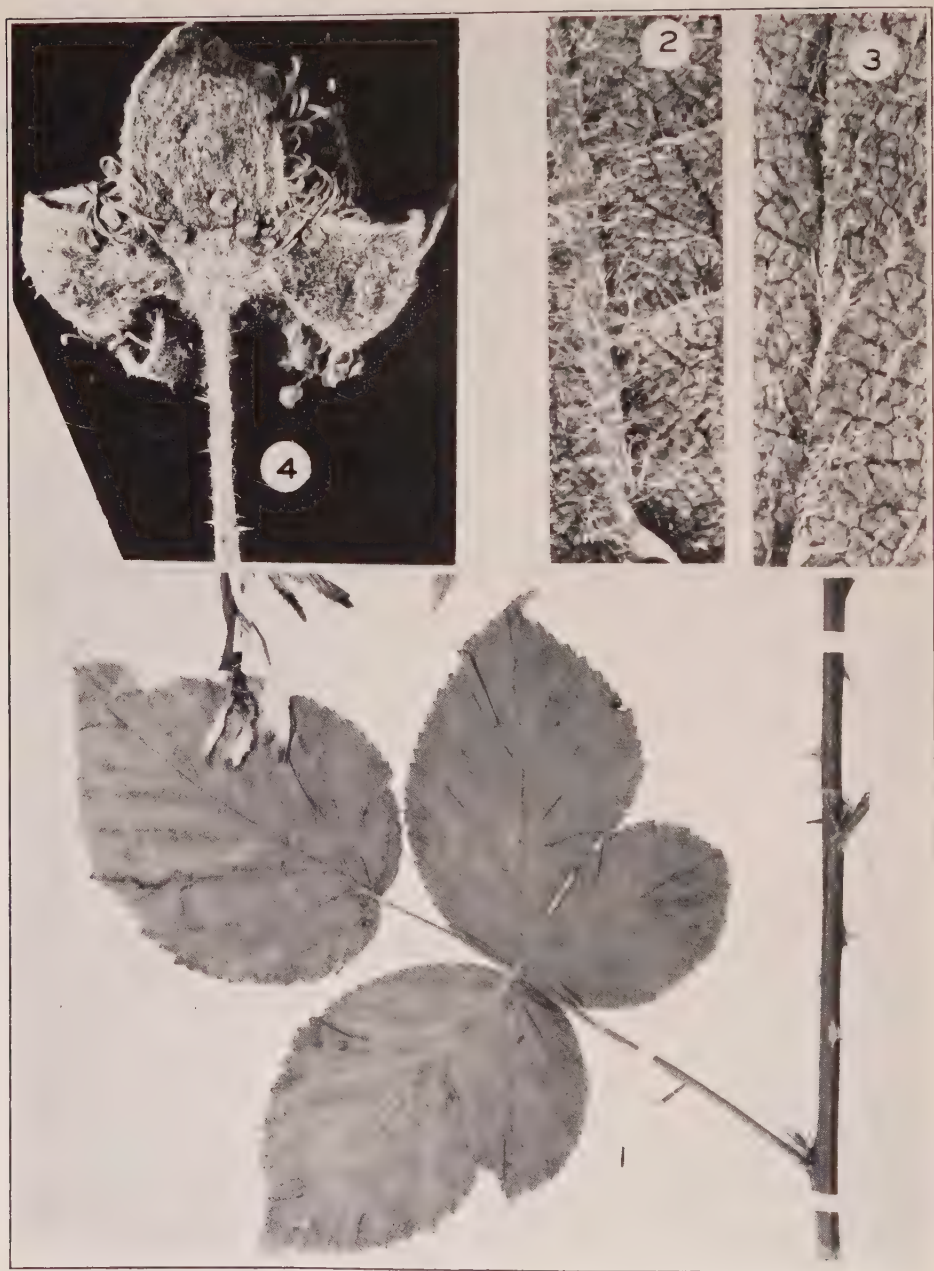


Photo. B. G. Schubert.

RUBUS SEWARDIANUS, all figs. from TYPE: FIG. 1, portion of primocane with leaf, $\times 5_6$; FIGS. 2 and 3, lower and upper surfaces of primocane-leaf; FIG. 4, summit of pedicel and calyx, $\times 5$

bracteis imis ternatis, superne simplicibus parvis quam pedicellis; pedicellis divergenter adscendentibus 1–2.5 cm. longis retrorse villosis plus minusve armatis; calycibus pilosis segmentis acuminatis deinde reflexis; fructibus 1.5–1.8 cm. diametro.—Brunswick County, VIRGINIA: dry thicket near old Taylor Place, Seward Forest, near Triplett, June 23, 1944, *Fernald* (and *Lewis*), no. 14,616 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.). See p. 98.

Rubus Sewardianus is named for the late Dr. WALTER SEWARD of Triplett, Virginia, through whose munificence the University of Virginia received the original Seward Forest and its initial endowment. Not referable to any of the doming species accounted for by Bailey, Gent. Herb. v. part v (1943). Very striking on account of the divergently branched overarching canes, which, because of the long and intricate branching and the strong prickles, become almost inextricable. Notable also because the prickles of the primary axes of the primocanes and the floricanes are straight and horizontally divergent, those of the branches strongly unguiculate. The very broad leaflets of the primocane-foliage, with the terminal leaflet cordate, and the acuminate leaflets of the floricanes at once distinguish it from firmer-leaved *R. Akermani*. From *R. cathartium* it is quickly told by its chiefly 3-foliolate leaves, those of the primocanes with low and relatively small dentation (rather than coarse and sharp serration), by the glandless petioles of the florican-leaves and glandless pedicels and calyx, by the more compact inflorescence, and by the unusual disparity in the toothing of the leaves, those of the primocanes dentate, of the floricanes sharply serrate. The differences between prickles of primary and secondary axes and between toothing of primocane- and florican-foliage are unusual features. *R. Sewardianus*, *R. Akermani* and *R. cathartium* are neighbors. No one would confuse them and, except for growth-habit, they are very different plants.

PLATES 890 and 891, *RUBUS AKERMANI* Fernald, all figs. from TYPE. PLATE 890, florican: FIG. 1, portion of cane, bearing solitary fruits, $\times 1$; FIG. 2, another cane with 3-fruited spurs, $\times \frac{1}{2}$; FIG. 3, lower surface of leaf, $\times 10$; FIG. 4, summit of pedicel and base of calyx, $\times 5$. PLATE 891, primocane: FIG. 1, portion of cane and typical leaf, $\times 1$; FIGS. 2 and 3, upper and lower leaf-surfaces, $\times 10$.

PLATES 892 and 893, *RUBUS CATHARTIUM* Fernald, all figs. from TYPE. PLATE 892, florican: FIG. 1, portion of cane in fruit, $\times 1$; FIG. 2, lower surface of leaf, $\times 10$; FIG. 3, summit of pedicel and base of calyx, $\times 5$. PLATE 893, primocane: FIG. 1, two leaves, $\times \frac{1}{2}$; FIG. 2, portion of cane, $\times 1$; FIGS. 3 and 4, upper and lower leaf-surfaces, $\times 10$.

PLATES 894 and 895, *RUBUS SEWARDIANUS* Fernald, all from TYPE. PLATE 894, all figs, $\times 1$: FIG. 1, primary axis of floricanes, to show straight prickles; FIG. 2, upper fruiting branchlets; FIG. 3, portion of lateral branch (showing unguiculate prickles) and of leafy branch. PLATE 895, FIG. 1, primocane and primocane-leaf, $\times \frac{5}{8}$; FIG. 2, lower, and FIG. 3, upper leaf-surface, $\times 10$; FIG. 4, summit of pedicel and calyx, $\times 5$.

ROSA MULTIFLORA Thunb. Well naturalized around Triplett, BRUNSWICK Co.: no. 14,713.

BAPTISIA TINCTORIA (L.) R. Br., typical. BRUNSWICK Co.: very local, seen only in thicket near Philadelphia Church, no. 14,621. See p. 94.

TEPHROSIA VIRGINIANA (L.) Pers., var. *GLABRA* Nutt.; see RHODORA, xlv. 452 (1943). Local range extended inland from the Coastal Plain to BRUNSWICK Co.: dry pine woods, Seward Forest, southeast of Ante, no. 14,715. See p. 102.

AMORPHA FRUTICOSA L. GREENSVILLE Co.: thicket along Quarrel's Creek, below Pair's Store, no. 14,623; sandy woods and thickets along Fontaine Creek, near Round Hill Church, no. 14,624. Closely approaching the Coastal Plain. See p. 99.

PSORALEA PSORALIODES (Walt.) Cory, var. *EGLANDULOSA* (Ell.) F. L. Freeman. To the single recorded Virginian station, in Dinwiddie Co. (see RHODORA, xlv. 366 and 452) add one in BRUNSWICK Co.: damp openings in woods, Moseley flat pine-land, near Triplett, no. 14,630. See p. 95.

DESMODIUM LINEATUM (Michx.) DC. Local range extended inland to BRUNSWICK Co.: rich low woods, "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,716. See p. 101.

**POLYGALA SANGUINEA* L., forma *ALBIFLORA* (Wheelock) Millsp. GREENSVILLE Co.: swaley clearing along Quarrel's Creek, below Pair's Store, no. 14,632. See p. 99.

**CYRILLA RACEMIFLORA* L., var. *SUBGLOBOSA* Fernald in RHODORA, xlv. 46, t. 813, figs. 1 and 2 (1944). Known only from a wooded swamp along Mill Creek, north of Skipper's, GREENSVILLE Co.

THE IDENTITY OF MICHAUX'S *ACER BARBATUM*.—For many years the northern and montane Sugar-Maple, *Acer saccharum* Marsh., at least in part, was called *A. barbatum* Michx. Fl. Bor.-Am. ii. 252 (1803). This name was used by Sargent, Silva, ii. 97 (1891), Sargent then including under it the northern Sugar-Maple, *A. saccharum* Marsh., the Black Sugar-Maple, *A. nigrum* Michx. f., the Southern Sugar-Maple or Sugartree, *A. floridanum* (Chapm.) Pax, the southwestern *A. grandidentatum* Nutt. and some others—an all-inclusive species later better understood and broken up by him (Man. Trees N. A.) into five species: *A. saccharum* with bark "becoming on large trunks $\frac{1}{2}$ '- $\frac{3}{4}$ ' thick and

broken into deep longitudinal furrows, . . . gray-brown", leaves pale beneath and "glabrous" (or in the var. *Schneckii* Rehd. of the Interior pubescent beneath), "calyx . . . greenish yellow, hairy on the outer surface", fruit "glabrous", etc.; *A. nigrum* Michx. f. with bark "becoming on old trunks thick, deeply furrowed, and sometimes almost black", leaves "with a broad sinus usually more or less closed . . . , dull green on the upper surface, yellow-green and soft-pubescent . . . on the lower surface, . . . with drooping sides", "flowers yellow, . . . calyx . . . pilose on the outer surface near the base", "fruit glabrous"; *A. floridanum* (Chapm.) Pax, with bark "thin, smooth, pale", leaves "at maturity . . . pale and pubescent below", "rounded, truncate or slightly cordate at the broad base", calyx "ciliate on the margin with long pale hairs", fruit "villose until fully grown"; the shrubby green-leaved and light-barked *A. leucoderme* Small, with "calyx glabrous or slightly villose", "fruit villose . . . until nearly grown"; and the western *A. grandidentatum* Nutt.

When, in RHODORA, xlv. 359 and 360 and 426-428, plates 725-727 (1942), I discussed the variations of *Acer floridanum*, I mistakenly assumed that the almost universal¹ reduction by students of trees of *A. barbatum* Michx. to the glabrous-leaved northern and montane *A. saccharum* (or *A. saccharophorum* K. Koch) meant that they had settled that point, in my general ignorance of trees supposing it unnecessary to look up my notes made in 1903, when I studied the Michaux material. Michaux in his *Flora Boreali-Americana* showed clear understanding of our maples, and the specimens in his herbarium closely match his descriptions. Passing *A. pensylvanicum*, *montanum*, *rubrum* and *Negundo*, we have three species of his *Flora* to consider: *A. saccharinum* "L.", *A. barbatum* Michx. and *A. eriocarpum* Michx. As said, the material in the Michaux Herbarium at Paris definitely fits his descriptions.

A. eriocarpum was described: "foliis palmato-5-lobis, inaequaliter dentatis, subtus glabriusculis glaucisque; sinibus obtusis: floribus fertilibus subsessiliter conglomeratis. *A. tomentosum*. Hort. paris. OBS. Fructus junior lanosus; maturus

¹ In RHODORA, xxiv. 79 (1922) Ashe spoke of *A. "barbatum* Mx. (*A. floridanum*) (Chap.) Pax" but he did not here discuss his identification.

pubens, alis amplissimis, decussato-convergentibus". This is, as it should be from the description, the River-Maple, *A. saccharinum* L., not Wangenheim and others.

Acer saccharinum of Michaux (following Wangenheim) included the two northern Sugar-Maples, *A. saccharum* Marsh. in part (*A. saccharophorum*) and *A. nigrum* Michx. f. There are two sheets in the Michaux Herbarium, with the small labels probably interchanged by the post-Michauxian mounter. The labels read: "Rivière Sagney et tout le Canada" and "Kentucky, Ohio et Ténassée". One is, as my notes say, "the common Sugar Maple of New England and Quebec", i. e. *A. saccharum*. The other, the tree collected by Michaux on his trip down the Ohio, is, my notes say, "the best kind of *A. nigrum*". When we compare these, "*HAB.* a sinu Hudson ad Carolinam et Ténassée", with Michaux's "*OBS.* Habitus *A. platanoidis*. Folia modo, uti supra dicti, subtus glabella, modo pubentia", it is evident that the *A. saccharinum* of Michaux was both the glabrous-leaved *A. saccharum* and the pubescent-leaved *A. nigrum*. That being the case and Michaux a remarkable observer, why should he describe the Sugar-Maple of the North all over again, in the very next paragraph, and why give the name *A. barbatum* (bearded) to the glabrous or essentially glabrous northern and montane tree which he so well knew?

The answer is, that *Acer barbatum* Michaux, as shown by his material, is *A. floridanum* (Chapm.) Pax (1886). *A. barbatum* "*HAB.* in Carolina" "*foliis breviter trilobis*" had the "*flores pallido-viriduli*", the "*Calyces masc. intus densissima barba obsiti*", whence the specific name. The calyces of *A. floridanum* are striking in anthesis on account of the long setiform beard projecting from the summit, the beard particularly conspicuous in the hermaphrodite flowers because it also covers the prolonging ovary. Now, more than 40 years late, I read in my notes on the Michaux material, examined when I had never heard of the pubescent-leaved southern *A. floridanum* (Chapm.) Pax with bearded calyx, these items: "*A. barbatum*, flowering branches of *very pubescent A. saccharum* (Sugar-Maple), nos. 1, 2, 3, 4, & 5. 6 = leaves and 7 fruit of *A. rubrum!*", the latter doubtless due to confusion during handling.¹

¹ Torrey and Gray, neither of them knowing *Acer floridanum*, wrote: "We suspect,

In view of the general abundance in the Piedmont and Coastal-plain areas of the Carolinas, thence to Florida and west to Texas (inland to southeastern Missouri), of this characteristic tree with thin and pale bark, leaves pale and pubescent beneath, and flowers bearded at summit, it would seem very strange if the tree were not separated until Chapman noted it in 1860 as a variety, and that its specific separation should have waited for Pax in 1886. Michaux knew it and gave it a descriptive name in 1803!

This interpretation gains support from the known ranges of *A. saccharum* and *A. floridanum* in North Carolina. I quote from Coker and Totten, *Trees of North Carolina*, 79 (1916). Under *A. saccharum*, Sugar-Maple, they say: "plentiful in our mountain valleys and slopes . . . Ayers and Ashe remark that it is 'Common . . . above an elevation of 2000 feet on cold moist soil'", while *A. floridanum*, Southern Sugar-Maple, "takes its place in the Piedmont and coastal plain regions of this state and from thence southward". Michaux, with vast experience in the North, where *A. saccharum* (his *A. saccharinum*) grew on "*Rivière Sagney et tout de Canada*", but also, more broadly, "*a sinu Hudson ad Carolinam et Tennassée*", would not redescribe it in the very next paragraph, if he considered it identical with the more northern and upland trees just described, as a second species from Carolina, with copiously bearded calyx-throat and there collect specimens with flowering branches very pubescent. Such a tree from eastern Carolina, with its characteristically paler and smoother bark could hardly have been missed by him. While I regret the necessity to change, I feel that *Acer barbatum* should finally be recognized for what it is. I am, therefore, forced to the following transfers.

indeed, that the description of *A. barbatum*, Michx. was drawn up, at least as to the flowers and fruit, from specimens of *A. saccharinum* [meaning Sugar-Maple]; the only species, so far as we are aware, which has the sepals bearded inside"—T. & G. Fl. i. 249 (1835). In the Supplement, after Gray had seen the Michaux material, he reaffirmed this judgment, saying: "*A. barbatum* (Michx.!) should be discarded as a species, it having been founded (as we had indeed long suspected) upon the flowers of *A. saccharinum*, the fruit of *A. rubrum*, and a leaf of something else, apparently of *A. spicatum*, (v. sp. in *herb. Michx. propr. & herb. Richard.*)"—T. & G. l. c. 684 (1840). Gray, apparently, was not disturbed by the very pubescent branchlets; neither was he troubled when he found that "*A. saccharinum* was wholly established by Linnaeus upon a specimen (leaves only) received from Kalm; which specimen, we find on inspection, belongs to *A. dasycarpum*! Still as the *A. saccharinum* of Wangenheim, Michaux, and all succeeding authors, is the true *Sugar-Maple*, a change in the application of the name would be unwarrantable."—T. & G. l. c. That happy period is gone.

ACER BARBATUM Michx. Fl. Bor.-Am. ii. 252 (1803), not Sargent and later auth. *A. floridanum* (Chapm.) Pax, var. *villipes* Rehder in Sargent, Trees and Shrubs, ii. 255 (1913). *A. floridanum*, forma *villipes* (Rehder) Fernald in RHODORA, xliv. 426, t. 725, fig. 3, and 727, fig. 4 (1942).

A. BARBATUM, forma **floridanum** (Chapm.), stat. nov. *A. saccharinum*, var. *floridanum* Chapm. Fl. So. U. S. 81 (1860). *A. floridanum* (Chapm.) Pax in Engler, Bot. Jahrb. vii. 243 (1886). *A. barbatum*, var. *floridanum* (Chapm.) Sargent, Garden & Forest, iv. 148 (1891) and Silva, ii. 100, t. xci. fig. 4 (1891); Fernald in RHODORA, l. c. t. 725, figs. 1 and 2, and 727, fig. 3 (1942).

A. BARBATUM, var. **Longii** (Fernald), comb. nov. *A. floridanum*, var. *Longii* Fernald in RHODORA, l. c. t. 726 (1942).

A. BARBATUM, var. **LONGII**, forma **platylobum** (Fernald), comb. nov. *A. floridanum*, var. *Longii*, forma *platylobum* Fernald, l. c. t. 727, figs. 1 and 2 (1942).

To the Virginian records add the following from the Roanoke drainage.

A. BARBATUM Michx., forma **FLORIDANUM** (Chapm.) Fernald, supra. BRUNSWICK Co.: bottomland woods along Poplar Creek, southwest of Ebony, no. 14,636. See p. 96.

A. BARBATUM, var. **LONGII** (Fernald) Fernald, supra. With the last, no. 14,637. See p. 96.

VITIS CINEREA Engelm. Local range extended inland to western GREENSVILLE Co.: bottomland woods along Quarrel's Creek, below Pair's Store, no. 14,723. See p. 101.

VIOLA STONEANA House. To the single record from southeastern Virginia (Princess Anne Co.) in RHODORA, xxxviii. 436 (1936) add the following. NORFOLK Co.: rich deciduous wooded ridge above swamp, near Gertie, no. 14,201. DINWIDDIE Co.: border of swampy woods southwest of Carson, no. 7542. GREENSVILLE Co.: rich deciduous woods by Metcalf Branch, east of Emporia, no. 9102; rich deciduous wooded slope by Three Creek, slightly above the "fall-line", northwest of Emporia, no. 11,872. BRUNSWICK Co.: mixed woods, Seward Forest, south of Hobbs Store, no. 14,725. MECKLENBURG Co.: dry wooded ridge north of Roanoke River, near Goode's Ferry, no. 7115.

Other specimens, one from Stony Man Mountain, identified by Brainerd in 1914, coll. *Steele & Steele*, no. 106, others from Alexandria Co., *Steele*, are in the Gray Herbarium. It is, therefore, a bit surprising to note the restricted range recorded by Brainerd in his Violets of North America, 21 (1921): "It is of limited range—moist woodlands New Jersey, eastern Pennsylvania to the vicinity of the District of Columbia". The Check-



Photo. B. G. Schubert.

CIRCAEA CANADENSIS: FIG. 5, half of leaf, $\times 1$

Var. *VIRGINIANA*, all figs. from TYPE: FIG. 1, plant, $\times \frac{1}{2}$; FIG. 2, leaf, $\times 1$; FIG. 3, portion of inflorescence, $\times 10$; FIG. 4, fruit, $\times 10$



Photo. B. G. Schubert.

ERYNGIUM PROSTRATUM: FIG. 4, fruits, $\times 10$

Var. DISJUNCTUM, all figs. from TYPE: FIG. 1, portion of plant, $\times 1$; FIG. 2, head, $\times 5$;
FIG. 3, fruits, $\times 10$

list of Plants in the Washington-Baltimore Area (1941) does not mention it. Very slight effort would probably extend its range from southeastern Virginia into eastern North Carolina.

**RHEXIA VIRGINICA* L., var. *SEPTEMNERVIA* (Walt.) Pursh. Frequent on the Coastal Plain, all collections but the first by Fernald & Long. JAMES CITY Co.: Sphagnum-Magnolia swamp, 4 miles west of Williamsburg, Grimes, no. 4315. NORFOLK Co.: wet peaty clearings in woods of *Pinus serotina*, south of Grassfield, no. 4063. NANSEMOND Co.: low sandy woods along Nansemond River, east of Cahoon Pond, northwest of Suffolk, no. 13,701; border of low woods northeast of Baines Hill School, no. 13,979. SUSSEX Co.: border of wet woods, Coppahaunk Swamp, southeast of Waverly, no. 10,746; swampy woods north of Jarratt, no. 12,749. PRINCE GEORGE Co.: exsiccated argillaceous swale about 3 miles southeast of New Bohemia, nos. 6299 and 6842.

Rhexia virginica, var. *septemnervia* is the extremely coarse variation of the species, originally described by Walter, Fl. Carol. 130 (1788) with "caule 4 s. 5-pedali". It is not only much taller than typical *R. virginica*; its aggregate of characters mark it as a good variety of the southern Coastal Plain, occurring from Florida to Louisiana, northward to southeastern Virginia, whereas the smaller typical *R. virginica* occurs from Nova Scotia to southern Ontario and Minnesota, thence south to Georgia, Alabama, Tennessee and Missouri, often ascending to high altitudes (up to 2300 ft. in North Carolina and Tennessee). I distinguish the two as follows

R. VIRGINICA (typical): stem 1-5 (exceptionally to 10) dm. high, 1-4.5 mm. thick toward base (excluding spongy tissue when present), its angles with wings 0.1-rarely 1 mm. wide; larger leaves 0.5-3 cm. broad, those at base of inflorescence 0.5-2 cm. broad, their longer teeth 0.5-1.2 mm. long; flowers 1-50 (rarely -100).

Var. *SEPTEMNERVIA*: stem (0.6-) 0.8-1.6 m. high, 5-8 mm. thick, its conspicuous thin wings 1-2 mm. wide; larger leaves 2-4 cm. broad, those at base of inflorescence 1.5-3 cm. broad, their longer teeth 1-1.5 mm. long; flowers 20-200 or more.

LUDWIGIA GLANDULOSA Walt. Local range extended inland from Coastal Plain to western GREENSVILLE Co.: border of Mitchell's Millpond, west of Brink, no. 14,641; muddy margin of Fontaine Creek, at mouth of Quarrel's Creek, no. 14,727. See p. 101.

**CIRCAEA CANADENSIS* Hill, var. *virginiana*, var. nov. (TAB. 896, FIG. 1-4) rhizoma firma 2.5-3 mm. crassa; foliis firmis cordatis undulato-dentatis; racemi rhachi pedicellisue valde

villosis, pedicellis ad basin purpurascens; sepalis dorso villosis.—Brunswick County, VIRGINIA: rich woods, associated with *Sanicula Smallii* Bickn., "Chamblis bigwoods", Seward Forest, near Triplett, June 23, 1944, Fernald (and J. B. Lewis), no. 14,643 (TYPE in Herb. Gray; ISOTYPE in Herb. Phil. Acad.). See p. 97.

Circaea canadensis Hill (1756), as revived by me in RHODORA, xix. 86, 87 (1917), is a plant of rich or alluvial woods; in America occurring from the Gaspé Peninsula to Lake St. John, Quebec, south to Nova Scotia, southern Maine, southern New Hampshire, western Massachusetts and Connecticut, New York and upland West Virginia. Although having the essential characters of the more northern plant, var. *virginiana* differs in some notable points: its rhizome is stiffer and thicker than in most of the northern material, though in occasional northern plants quite as stout; its leaves are of firmer texture than in most (but not all) of the northern series, the petiole relatively short, the definitely cordate blade (FIGS. 1 and 2) merely undulate-dentate (in typical *C. canadensis* (FIG. 5) the membranaceous long-petioled blade merely rounded or subcordate, rarely definitely cordate, at base, and coarsely sharp-dentate); in var. *virginiana* the bases of the pedicels (and sometimes the adjoining rachis) are conspicuously deep purple (in typical *C. canadensis* only faintly so); in var. *virginiana* the backs of the calyx-lobes are somewhat spreading-villous, in typical *C. canadensis* mostly glabrous. It may prove that the petals are shorter in var. *virginiana*, the material being too inadequate to warrant a definite assertion. The 2-locular fruits seem inseparable from those of *C. canadensis*.

Var. *virginiana* is geographically far removed from the typical northern (and Eurasian) plant. Its type-station is in rich woods at the base of a slope (alt. about 200 feet) in the Seward Forest, where, as stated, it is associated with unusually abundant and southern *Sanicula Smallii* (Florida to eastern Texas, north to southern Virginia, Tennessee and southeastern Missouri), other occupants (some of them scarce) of these rich woods including such southern species as *Zizia trifoliata* (Michx.) Fern. (*Z. Bebbii* (Coult. & Rose) Britton), *Ligusticum canadense* (L.) Britt., *Carex oxylepis* Torr. & Hook. and *C. flaccosperma* Dew., *Polymnia Uvedalia*, var. *densipila* Blake (Bermuda, and Missouri

to Louisiana and eastern Texas), etc. These are not the northern species with which typical *Circaea canadensis* is usually associated. Further collections, which will doubtless be made elsewhere in the South, may reveal other and stronger differences.

PLATE 896, FIGS. 1-4, *CIRCAEA CANADENSIS* Hill, var. *VIRGINIANA* Fernald, all from TYPE: FIG. 1, a plant, $\times \frac{1}{2}$; FIG. 2, leaf, $\times 1$; FIG. 3, portion of inflorescence, $\times 10$; FIG. 4, fruit, $\times 10$. FIG. 5, typical *C. CANADENSIS*: half of characteristic leaf, $\times 1$, from Frankfort, Maine, *Fernald & Long*, no. 14,208.

SANICULA SMALLII Bickn. To the few recorded Virginian stations add a prosperous one in BRUNSWICK Co.: rich woods, "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,644. See p. 97.

**ERYNGIUM PROSTRATUM* Nutt., var. *disjunctum*, var. nov. (TAB. 897, FIG. 1-3, TAB. 898, FIG. 1), fructu plus minusve obconico 0.6-0.9 mm. longo 0.5-0.6 mm. lato.—Southampton Co., VIRGINIA: moist sandy and peaty shore of Whitefield's Millpond, southwest of Corinth, July 7, 1943, *Fernald & Long*, no. 14,375; Sept. 18, 1944, *Fernald* (with *J. B. Lewis*), nos. 14,728 (TYPE in Herb. Gray.; ISOTYPES in Herb. Phil. Acad. and elsewhere), 14,729 and (in wet litter and humus under shrubs at upper border of beach) 14,730. See p. 103.

Eryngium prostratum Nutt. has the usually depressed-cupuliform or subglobose fruits (PLATE 897, FIG. 4) 0.8-1 mm. broad and mostly shorter (0.4-0.6 mm. high or long), with the scattered papillae capitate or barely stalked. It occurs from northern Florida to eastern Texas, northward to southeastern South Carolina, southwestern Georgia, southwestern Kentucky and western Tennessee, southeastern Missouri and eastern Oklahoma. It thus has a wide Coastal Plain range, largely on the Gulf Coastal Plain and along the Mississippi Embayment. Var. *disjunctum*, removed by 360 miles from the northeastern known limit of typical *E. prostratum* (Cambahee River, southwest of Hendersonville, Colleton Co., South Carolina, *Wiegand & Manning*, no. 2263), by about 500 miles from the nearest station (muddy shore of small pond near Flint River, Sumter Co., (*Harper*, no. 1047) in Georgia, and by 600 miles, with the Cumberland Plateau and the Appalachian Upland intervening, from the easternmost station in Kentucky (gravelly edge of small creek, 3 miles south of Murray, Calloway Co., *Smith & Hodgdon*, no. 4149), shows a type of geographic affinity which we find in many plants of southeastern Virginia.

Superficially and in the great range of ecological variation in response to lack of or abundance of moisture and shade, the plant of Whitefield's Pond closely matches typical *E. prostratum*, but its fruits (PLATE 897, FIG. 3) are usually more elongate, tending to obconic, usually narrower than in the typical form and with stipitate papillae. At the type-locality the plant is excessively variable. When discovered in early July, 1943, the loosely ascending stems were only 5-15 cm. long. In mid-September, 1944, they were prostrate, rooting at all but the lower nodes and up to 4.5 (rarely -6) dm. long. On open sand the basal leaf-blades ranged from 1.5-3 cm. long and 0.8-2 cm. broad, the cauline leaves 2-10 mm. wide (PLATE 897, FIG. 1). Nearer the water the leaves were thinner and larger, while in the loose litter and humus in the shade of the thicket the plants (PLATE 898, FIG. 1) scarcely yet fruiting, had basal blades 4-7 cm. long and 2-4.3 cm. broad, the cauline leaves often nearly as broad.

The latest treatment of the genus with us seems to be the *Synopsis of the North American Species of Eryngium* by Mathias and Constance in Am. Midl. Nat. xxv. 361-387 (1941). There they assign our two prostrate species, *E. prostratum* Nutt. and *E. Baldwini* Spreng., the following ranges: *E. prostratum*, "Tennessee to Florida west to Missouri and Texas"; *E. Baldwini* "Southeastern Georgia to Florida". Much earlier, in 1888, Coulter & Rose, Revis. N. Am. Umbelliferae, 102 (1888), cited *E. prostratum* from Georgia and Kentucky, and later, in their *Monograph of the North American Umbelliferae*, Contrib. U. S. Nat. Herb. vii. no. 1: 46 (1900), they also cited material of *E. prostratum* from Indian Territory (now Oklahoma). In the small representation in the Gray Herbarium *E. prostratum* is represented from South Carolina, Georgia, Florida, Kentucky, Tennessee, Mississippi, Missouri, Arkansas, Louisiana, Oklahoma and Texas, as well as Virginia (var. *disjunctum*). It is too bad that the authors of the recent *Synopsis*, who (their p. 361) cite the Gray Herbarium as having lent material of the genus, did not check the representation there (and evidently in other herbaria).

Although in their *Monograph* of 1900 Coulter & Rose, l. c. 45, assign the quite distinct *Eryngium Baldwini* (altered by them to



ERYNGIUM PROSTRATUM: FIGS. 2-5, heads, $\times 5$, from different colonies

Photo. B. G. Schubert.



Photo. B. G. Schubert.

ERYNGIUM BALDWINI: FIG. 1, base and median node, $\times 1$; FIG. 2, fruits, $\times 10$; FIGS. 3-5, heads, $\times 5$, from different stations

"*baldwinii*") the range "from Georgia and Florida to Louisiana and Missouri", they added the significant "although all the material we have seen is from Florida". The small series in the Gray Herbarium shows 3 numbers from Georgia, many from Florida, but none from farther west; but, in view of the many characters distinguishing *E. Baldwinii* and *E. prostratum*, the only distinctions given in the recent *Synopsis* are bound to perplex the beginner:

- "Involucral bracts shorter than the heads; bractlets exceeding the fruit; fruit 1 mm. in diameter.....39. *E. Baldwinii*.
Involucral bracts equalling the heads; bractlets shorter than the fruit; fruit 2 mm. in diameter.....40. *E. prostratum*."

In attempting to identify plants by these characters one quickly finds the length of bracts very unstable but the length of bractlets very constant, while it is most difficult in *E. prostratum* to find any ripe fruits more than half the diameter here assigned them (see PLATE 897, FIG. 4), unless, perchance, they referred to the persistent calyx-segments which cap the fruit. In *E. prostratum*, typical, the cauline leaves have dilated, flat and entire to coarsely toothed or cleft blades, in *E. Baldwinii* (PLATE 899), to quote Coulter & Rose, they are "3-parted (rarely entire or lobed), the divisions from lanceolate to filiform". In *E. prostratum* all but sometimes the uppermost bractlets are shorter than the flowers, so that the summits of the loosely spreading-ascending perianth are evident, the bractlets, often appressed to the young flower, being coarsely trident-shaped, with the 2 lateral lobes broad, thus suggesting the bracts of *Betula populi-folia*; the mature head is 3-10 mm. long and subtended by an involucre of variable length, sometimes (but rarely) as prescribed, equaling the heads (PLATE 898, FIG. 2), often (FIG. 3) two thirds as long, again (FIG. 4) barely half as long, and sometimes (FIG. 5) so short as scarcely to equal half the diameter of the head! In *E. Baldwinii* (PLATE 899), on the other hand, the bractlets are as stated by Mathias & Constance, "exceeding the fruit", so that the erect and connivent calyx-segments are prevented from spreading. Incidentally the long bractlets are lance-attenuate and entire (not broadly 3-lobed). The mature head (FIGS. 3-5) is 2-6 mm. high, usually with very short involucre (FIG. 3) but sometimes with them half as long as the

head (FIG. 4) or rarely quite as long (FIG. 5). The best character, in addition to the foliage and bractlets, is in the mature fruit. In *E. prostratum* the large calyx-segments, capping the fruits (PLATE 897, FIGS. 3 and 4), are divergent to only loosely ascending and the papillae on the body of the fruit are scattered. In *E. Baldwini* the persistent calyx-segments are erect and strongly connivent above (PLATE 899, FIG. 2) and the papillae are closely crowded.

Since the strongest specific characters of these two species have been previously so little clarified, it seems desirable to show them in the accompanying plates. It is also important to discuss the characteristic and strictly erect plant of the South which passes as *Eryngium integrifolium* Walt. Fl. Carol. 112 (1788). Taking the characters chiefly from Coulter & Rose, Contrib. U. S. Nat. Herb. vii. 48, we get

Erect, 3 to 9 dm. high, branching above; leaves oblong or oblong-obovate, the basal ones entire or crenately toothed [very rarely entire; Small says simply "serrate-crenate"], upper ones becoming sharply serrate or even laciniately toothed; bracts linear and entire or with 2 to 4 prickly teeth longer than the heads; bractlets equally 3-cuspidate, longer than the flowers.

Now, taking the characters of *E. prostratum* chiefly from Coulter & Rose, l. c. 45, we get

Prostrate, diffusely branched; lower leaves oblong, entire, few-toothed, or lobed at base, the upper ovate, few-toothed or entire, with some additional trifid ones; bractlets very small [broadly trifid above].

The reason for intruding *Eryngium integrifolium* into the discussion is, that Walter, in describing it, may have had *E. prostratum* Nutt. before him. Torrey & Gray, uniting *E. prostratum* and *E. Baldwini* as a single species, referred *E. integrifolium* with doubt to the aggregate; and in other works, like Watson's *Bibliographic Index* and *Index Kewensis*, it has been similarly referred to *E. prostratum* as a doubtful earlier name, but not formally taken up, since no *E. prostratum* was actually known from South Carolina. Now, however, with good material of it known from near Hendersonville in Colleton Co., only about 45 miles from Charleston, Walter's species comes into the picture. Here is Walter's account

integrifolium 3.

caule procumbente ramoso; foliis radicalibus rotundatis, integris, planis; foliis caulinis nervosis, ovato lanceolatis, apice serratis basi integris, serraturis subspinosis; foliis floralibus trifidis; paleis trifurcis; capitulis parvis caeruleis.

Obviously *caule procumbente* is far from good for the tall (up to 9 dm.) and erect so-called *Eryngium integrifolium* of recent treatments (*E. virgatum* Lam.), but it is the striking habitual character of *E. prostratum*. *Caule ramoso* would do for either (if the larger and somewhat forking plants of *E. virgatum* are considered). *Foliis radicalibus rotundatis* is as poor for one as for the other. *Foliis integris* is perfect for most material of the procumbent *E. prostratum*, not at all good for characteristic *E. virgatum*. *Foliis caulinis nervosis, ovato-lanceolatis* would do for either, while *apice serratis basi integris* is good for *E. prostratum*, not for *E. virgatum*; and *serraturis subspinosis* is perfect for *E. virgatum*. *Foliis floralibus trifidis* is good for *E. virgatum*, in which occasional involucre bracts are 3-cleft; and *paleis trifurcis* is unquestionably good for the long 3-cleft bractlets of the latter, the 3-forked pales (bractlets) of *E. prostratum* being hidden in the head. *Capitulis parvis caeruleis* is all right for either. It is difficult to reconcile the procumbent stem, entire basal leaves and cauline leaves with entire bases and teeth only at apex, with *E. virgatum*. The other characters, when not shared by both species, are better for that than for *E. prostratum*. It is also difficult to imagine Walter confusing such very different species. When Coulter & Rose, considered whether Walter's *E. integrifolium* might be either *E. Baldwini* or *E. prostratum*, they concluded: "But Walter's description is so meagre [mixed or confused would have been better], and the two species in question so variable, that there seems to be no way of positively determining which one of them is *E. integrifolium* Walter"—C. & R., Revis. N. Am. Umbelliferae, 102 (1888). Soon thereafter, two distinguished botanists at the British Museum of Natural History, James Britten and Edmund G. Baker, took up the point:

E. INTEGRIFOLIUM Walt. Fl. Carol. 112 (1788). Messrs. Coulter & Rose . . . say that it "seems impossible to determine" this plant. The specimen in Walter's Herbarium, however, although fragmentary, is clearly identical with *E. virgatum* Lam. as was indeed correctly indicated by Sprengel (Syst. i. 870) in 1825. Walter's name must therefore

be substituted for Lamarck's.—Britten & E. G. Baker, Journ. Bot. xxxviii. 244 (1900).

In view of the facts, that Walter's own herbarium is lost, that the series which John Fraser carried to England was many times handled¹ and its specimens given to those who were specially interested,² and that it had at least one change of lodging before it reached the British Museum, one can hardly escape the conviction that the specimen discussed by Britten & Baker does not tell the whole story.

PLATE 897, FIGS. 1-3, *ERYNGIUM PROSTRATUM* Nutt., var. *DISJUNCTUM* Fernald: FIG. 1, portion of TYPE, $\times 1$; FIG. 2, head, $\times 5$, from TYPE; FIG. 3, fruits, $\times 10$, from TYPE. FIG. 4, typical *E. PROSTRATUM*: fruits, $\times 10$, from Saratoga, Mississippi, *Tracy*, no. 8631.

PLATE 898, FIGS. 2-5, *ERYNGIUM PROSTRATUM* Nutt., heads, $\times 5$: FIG. 2, from Chattahoochee River, Seminole Co., Georgia, *Eyles*, no. 7081; FIG. 3, from Lake Charles, Louisiana, *Allison*, no. 210; FIG. 4, from Sapulpa, Oklahoma, *Bush*, no. 193; FIG. 5, from southwest of Hendersonville, South Carolina, *Wiegand & Manning*, no. 2263. FIG. 1, var. *DISJUNCTUM* Fernald; base of very large plant, $\times 1$, from type-station, *Fernald*, no. 14,730.

PLATE 899, *ERYNGIUM BALDWINI* Spreng.: FIG. 1, base and median node, $\times 1$, from Indian River, Florida, *Curtis*, no. 1002; FIG. 2, fruits, $\times 10$, from north of Waverly, Camden Co., Georgia, *Wiegand & Manning*, no. 2259; FIG. 3, head, $\times 5$, from no. 2259; FIG. 4, head, $\times 5$, from Shell Island, Florida, *Tracy*, no. 7446; FIG. 5, head, $\times 5$, from Fort Myers, Florida, *J. P. Standley*, no. 108.

CORNUS FOEMINA Willd. (*C. stricta* Lam.). Range extended inland to BRUNSWICK Co.: wooded swamp along Quarrel's Creek, "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,732. See p. 101.

NYSSA SYLVATICA Marsh., var. *BIFLORA* (Walt.) Sarg. Local range extended inland to BRUNSWICK Co.: along Sawmill Branch, Seward Forest, near Triplett, no. 14,647.

N. SYLVATICA, var. *CAROLINIANA* (Poir.) Fernald in RHODORA, xxxvii. 436, pl. 400 (1935). Local range extended to BRUNSWICK Co.: "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,648.

RHODODENDRON CANESCENS (Michx.) Sweet. Local range extended inland to BRUNSWICK Co.: by small branch in woods, Seward Forest, east of Hobbs Store, no. 14,733.

LEUCOTHOE AXILLARIS* (Lam.) D. Don., var. **ambigens, var. nov. (TAB. 901), a var. *typica* differt foliis lanceolatis vel lanceolato-oblongis superna sensim angustatis acuminatis; racemorum

¹ "Walter in his Flora Caroliniana has another species . . . Of this plant I was not able to find any information in his Herbarium."—Pursh, Fl. Am. Sept. 415 (1814). If we accept the reputation given Pursh by Thomas Nuttall and other contemporaries, it is a wonder that any of Walter's plants were preserved for inspection by later students!

² See Fernald & Griscom, RHODORA, xxxix. 497 (1937).



Photo. B. G. Schubert.

LEUCOTHOE AXILLARIS: FIG. 1, TYPE, $\times \frac{1}{2}$, of *Andromeda axillaris* Lam., after Cintract; FIG. 2, flowering branch, $\times 1$, of *L. platyphylla* Small; FIG. 3, portion of inflorescence, to show blunt bracts and calyx-segments, $\times 4$



Photo. B. G. Schubert.

LEUCOTHOE AXILLARIS, var. AMBIGENS: FIG. 1, portion of TYPE, $\times 1$; FIG. 2, portion of inflorescence of TYPE, $\times 4$

bracteis subrotundis obtusis; sepalis oblongo-ovatis obtusis.—Swampy woods and clearings, southeastern Virginia to Florida. VIRGINIA: by Lake Drummond, Great Dismal Swamp, Norfolk Co., April 8, 1939, *J. T. Baldwin, Jr.*, no. 120; swampy woods, west end of Lake Drummond, Nansemond Co., Dec. 30, 1938, *Fernald & Long*, no. 9683; border of pine woods near Benefit, Norfolk Co., May 7, 1935, *Fernald & Griscom*, no. 4480; low woods, Adams Swamp, Nansemond Co., April 9, 1937, *Fernald & Long*, no. 7124; Goodman Swamp, near St. Mary's Church, southwest of Whaleyville, Nansemond Co., Sept. 17, 1937, *Fernald & Long*, no. 7565; wet woods and clearings, Great Dismal Swamp, southeast of Whitemarsh School, Nansemond Co., Oct. 12, 1929, *Fernald & Long*, no. 11,600 (autumnal flowering); swampy thickets in sandy and peaty pine barrens, east of Cox Landing, south of South Quay, Nansemond Co., May 10, 1940, *Fernald & Long*, no. 11,887 (TYPE in Herb. Gray.); swampy pine woods south of Yadkin, Norfolk County, April 21, 1942, *Fernald Long & Abbe*, no. 14,213. NORTH CAROLINA: low oak-pine woods, 8 miles south of Williamston, Martin Co., June 21, 1927, *Wiegand & Manning*, no. 2373. SOUTH CAROLINA: locality not stated, type of *Andromeda axillaris*, β . Lam.; rich pine woods, Pine Island, Horry Co., April 9, 1932, *Weatherby & Griscom*, no. 16,608. FLORIDA: several sheets without further data, *Chapman*.

Leucothoe axillaris, var. *ambigens* is so named because of the extreme doubt, which, until after the war, cannot be removed, as to its exact identity. That it is an extreme variety of *L. axillaris* (Lam.) D. Don there can be no doubt, but whether it has one or more earlier names is the problem. The type of *Andromeda axillaris* Lam. Encycl. i. 157 (1783) is shown in PLATE 890, FIG. 1. It is the extreme of the species with ovate, oval or ovate-oblong leaves abruptly short-tipped, the shrub which abounds on the Coastal Plain, from Florida to Louisiana, northward to North Carolina and, less characteristically and locally, into southeastern Virginia (swamp of Nottoway River, Smith's Ferry, Southampton Co., *Fernald & Long*, no. 7935; swampy woods north of Whitemarsh School, Nansemond Co., *F. & L.*, no. 10,764), both of the Virginia collections being transitional to var. *ambigens*.

There are two very similar species, *Leucothoe axillaris* of the Coastal Plain, and the shrub of the mountain-region which passes, perhaps incorrectly, as *L. Catesbaei* (Walt.) Gray (PLATE 902). *L. axillaris*, when it lives up to the type (PLATE 900, FIG. 1) and to Gray's description in the Synoptical Flora,

"leaves from oval to oblong-lanceolate . . . , mostly with an abrupt acumination, serrulate mainly toward the apex," is easily distinguished because the bracts of the young raceme are broadly rounded and the broad ovate-oblong sepals blunt, whereas the mountain species which we call *L. Catesbaei* (PLATE 902) has "leaves ovate-lanceolate to lanceolate and tapering into a long and slender acumination, serrulate throughout" and the bracts are acute, the acutish sepals narrow. *L. axillaris*, var. *ambigens* has leaves which can easily be matched by those of the upland species and in some collections, such as *Fernald & Long*, no. 7565, sharp serrulations extend three-fourths to the base, more strongly than in much of *L. "Catesbaei"*.

Now the difficulty is, that Walter could hardly have escaped seeing either typical *Leucothoe axillaris* or transitional forms or var. *ambigens* somewhere in the eastern Carolinas or Georgia, for either typical *L. axillaris*, the extreme described as *L. platyphylla* Small in Bull. Torr. Bot. Cl. xxviii. 290 (1901) (PLATE 900, FIGS. 2 and 3), or intermediates or extreme var. *ambigens* are in his territory, as shown by abundant specimens. Nevertheless, the only evergreen *Andromeda* of this affinity described by Walter was his

A. Catesbaei 3. racemis ovatis axillaribus, corollis ventricoso tubulosis bracteatis; foliis alternis petiolatis, ovato-lanceolatis, serrulatis, crassis, perennantibus.—Walt. Fl. Carol. 137 (1788).

When, not realizing that the Coastal Plain species may also have ovate-lanceolate or narrower leaves "serrulatis", Gray examined Walter's type he merely made the memorandum that it "= *A. spinulosa* Pursh." But Pursh had some points scrambled, for he described *A. axillaris*, with a var. *longifolia* (foliis lineari-lanceolatis *longissimis*) from "the mountains of Virginia to Georgia", whereas the type of *A. axillaris* is of the shortest- and broadest-leaved extreme of the Coastal Plain species! As to *A. spinulosa* Pursh, with *A. Catesbaei* cited as a synonym, his description seems to be that of the montane species, although he specifically assigned it to "Lower Carolina", the Coastal Plain region.

Since none of the original descriptions note any of the really distinctive characters, while those botanists who early applied or misapplied the names did not seem to understand them, we

are left with the problems as to the true identities of *Andromeda Catesbaei* Walt. and of *A. spinulosa* Pursh. It is not unreasonable to suppose that, when the types can be studied with the real specific differences in mind, we may have to reduce *A. Catesbaei* Walt. to the Coastal Plain species and to decide on the proper name for the montane one.

It is not without interest that Lamarek recognized two varieties of his *Andromeda axillaris*: the typical plant, "foliis ovatis", and β . "foliis lanceolatis", but he gave no name to the latter; the specimen, as shown by a photograph of it, being *Leucothoe axillaris* var. *ambigens* from South Carolina.

PLATE 900, *LEUCOTHOE AXILLARIS* (Lam.) D. Don: FIG. 1, TYPE of *Andromeda axillaris* Lam., $\times \frac{1}{2}$, after *Cintract*; FIG. 2, flowering branch of *L. platyphylla* Small, $\times 1$, from Emanuel Co., Georgia, *Harper*, no. 2093; FIG. 3, portion of inflorescence, to show blunt bracts and calyx-segments, $\times 4$, from near Augusta, Georgia, *Olney & Metcalf*.

PLATE 901, *L. AXILLARIS*, var. *AMBIGENS* Fernald: FIG. 1, portion of TYPE, $\times 1$; FIG. 2, portion of inflorescence of TYPE, to show blunt bracts and calyx-segments, $\times 4$.

PLATE 902, *L. CATESBAEI* (Walt.) Gray, as usually interpreted: FIG. 1, portion of flowering branch, $\times 1$, from Biltmore, North Carolina, *Bilt. Herb.*, no. 1280^b; FIG. 2, portion of inflorescence, to show acute bracts and calyx-segments, $\times 4$, from no. 1280^b.

VACCINIUM TENELLUM Ait. Range extended inland to GREENSVILLE Co.: sandy woods and thickets along Fontaine Creek, near Round Hill Church, no. 14,651.

LYSIMACHIA LANCEOLATA Walt. Very local in BRUNSWICK Co.: border of rich woods, Seward Forest, near Triplett, no. 14,652.

FRAXINUS CAROLINIANA Mill., var. *PUBESCENS* (M. A. Curtis) Fernald. Local range extended inland to western BRUNSWICK Co.: bottomland woods along Poplar Creek, southwest of Ebony, no. 14,653.

LIGUSTRUM SINENSE Lour. To the records from more easterly counties add one from GREENSVILLE Co.: thicket by Meherrin River, below Emporia, no. 14,604.

**PHACELIA FALLAX* Fernald in *RHODORA*, xlv. 51, t. 814 (1944). Known in Virginia only from GILES Co.: May, 1869, *Canby*.

**P. DUBIA* (L.) Trel., var. *INTERIOR* Fernald in *RHODORA*, xlv. 54, t. 816, fig. 4 (1944). ALLEGHANY Co.: dry roadside, Covington, *Hunnewell*, no. 4080.

**HELIOTROPIMUM AMPLEXICAULE* Vahl. HENRICO COUNTY: waste ground, Richmond, May 11, 1884, *J. R. Churchill* as *H. anchusaeifolium* Poir.; waste places and roadsides, Richmond, *Fernald, Long & Smart*, no. 5904, as *H. europaeum* L. DINWIDDIE COUNTY: waste ground and cinders of freight-yard of

Atlantic Coast Line Railroad, Petersburg, *Fernald & Long*, no. 12,172, as *H. europaeum*.

H. amplexicaule Vahl, a decumbent perennial, with many soon forking branches, sessile or but short-petioled narrowly oblong-lanceolate leaves and lilac flowers in at first dense cymes, has fruit very similar to that of *H. indicum*. It was formerly erroneously reported as *H. europaeum*, an annual with 4-lobed (instead of 2-lobed) fruits and long-petioled elliptic leaves. The latter is before me from streets of Alexandria, Virginia, September 28, 1897, *Steele*. *H. amplexicaule* (with an often misleading name) is naturalized from South America.

SCUTELLARIA PARVULA Michx., var. **Leonardi** (Epling), comb. nov. *S. Leonardi* Epling in Am. Journ. Bot. xxvi. 20 (1939). *S. parvula*, var. *ambigua* sensu Fernald in RHODORA, iii. 201 (1901), not *S. ambigua* Nutt. Gen. ii. 37 (1818). *S. ambigua* sensu Leonard in Contrib. U. S. Nat. Herb. xxii. 729 (1927), not Nutt. (1818).

When I identified this smoothish extreme of *Scutellaria parvula* as *S. ambigua* Nutt. I was apparently in error. Epling has stated that the Nuttall material at Kew, as well as the representation of it at the Philadelphia Academy, suggests a mixture of *S. nervosa* Pursh with *S. parvula*, var. *Leonardi*, only Epling, naturally, did not use the latter combination. He speaks of Leonard "who, in his careful and useful revision, recognized the specific distinctions clearly but, lacking access to the type, was misled as to the name." The "specific" distinctions are those of superficial pubescence and size and slight difference of shape of leaf-outline, points which, if treated as "specific", would break such a complex transcontinental series as *S. epilobiifolia* A. Hamilt. into many such "species". Yet Epling, in spite of a very real difference in the nutlets, throws the latter, not even as one of his "subspecies", back into the Old World *S. galericulata* L. As to the "specific distinctions clearly" "recognized" in Leonard's revision one finds himself in some perplexity. On p. 729 of his study, Leonard said under *S. parvula*: "*Scutellaria parvula* is closely related to *S. ambigua*, since both species have similar flowers and roots and resemble each other in habit. There are, however, certain striking differences. The stem of *S. ambigua* is glabrous, or, at most, roughened or finely puberulent on the angles, while its leaves are rather narrowly ovate or

more nearly lanceolate, strongly involute, and not exceeding 7 mm. in width. . . . Plants are not uncommon, however, in the ample material of the U. S. National Herbarium, which seem to be intermediate between the two species."

Remembering, then, that *S. ambigua* sensu Leonard is "strikingly" different from *S. parvula* because its "stem is glabrous, or, at most roughened or finely puberulent on the angles" and the leaves are "strongly involute", we turn to the discussion of the former at the bottom of the page and read: "*Scutellaria ambigua* is a well-marked species, readily distinguished from *S. parvula* by its minutely puberulent stem and more pointed leaves with revolute margins" (italics mine). Furthermore, although Nuttall, in describing *S. ambigua*, definitely said, "HAB. In dry and open forests, Ohio", Leonard says: "TYPE LOCALITY: Council Bluff on the Missouri." It is too bad that the name *S. ambigua* does not really belong here. Some such name is needed for the "specific distinctions clearly" "recognized" in these quotations.

As I understand the Nuttall type of *Scutellaria ambigua*, Dr. Pennell having kindly sent me the specimen at the Philadelphia Academy for study, it is a stiff and thick-leaved extreme of *S. nervosa* Pursh, with the larger cauline leaves unusually small and subentire or barely dentate, narrowly ovate and 1.5–2.5 cm. long by 8–15 mm. broad. It is highly localized: on Linnaean Hill in the District of Columbia (*Steele* in U. S. Nat. Herb.), somewhere in Ohio, presumably near the Ohio River (Nuttall's type), near Blue Licks in northern Kentucky (*Short*) and on limestone outcrops at Mascot, Tennessee (*Billings, Cain & Drew*).

Typical *Scutellaria nervosa* is much more flexuous, with the leaves membranaceous, the larger median cauline ones broadly to narrowly ovate and dentate with several teeth on each margin, 2–5 cm. long by 1–3.25 cm. broad, the young foliage abundantly strigose on the upper face. This plant is of broad range in the Piedmont region and Appalachian Upland (Pursh's TYPE, which Dr. Pennell has kindly sent me for study, coming from Winchester, Virginia) and only slightly and exceptionally intruding into the lower or flatter marginal areas. In its narrower- and firmer-leaved extremes it merges into *S. ambigua*. Superficially resembling typical *S. nervosa* is the plant of the outer Piedmont

and Atlantic Coastal Plain region, crossing westward mostly north of the Appalachian Upland, as far as Iowa and found at relatively low levels along the Mississippi Valley. This extreme, which has the upper surfaces of the leaves glabrous, was called to my attention by Mr. Bayard Long. It and typical *S. nervosa* are neighbors near Philadelphia and Washington and at some points along the Ohio River but the general avoidance of the Appalachian Upland of the plant with upper leaf-surface glabrous is so evident from the 118 sheets of specimens before me that I am looking upon *S. nervosa* as consisting of three geographic varieties as follows. For the use of the material in their care I am greatly indebted to Dr. Fred J. Seaver of the New York Botanical Garden, Dr. Francis W. Pennell and Mr. Bayard Long of the Academy of Natural Sciences, Philadelphia, and Dr. William R. Maxon of the United States National Herbarium.

SCUTELLARIA NERVOSA Pursh, var. **typica**. *S. nervosa* Pursh, Fl. Am. Sept. 412 (1814) from "the banks of rivulets: Virginia", Winchester, in the mountains. *S. gracilis* Nutt. Gen. ii. 37 (1818). *S. parviflora* Raf. ex A. Hamilt. Mon. Scut. 37 (1832) as a syn. of *S. gracilis* Nutt., without diagnosis. [Epling, Univ. Calif. Pub. Bot. xx. no. 1. 20 (1942) gives as the first synonym of *S. nervosa* "*S. teucrifolia* J. E. Smith, in Rees Cycl. 32, No. 15, 1816; a synonym, based upon the preceding [*S. nervosa*]"]. But, if he had looked up Smith's publication of 1819, not 1816, he could hardly have made that statement, for as no. 6 Smith maintained *S. nervosa*, taking his account from Pursh; while his no. 15, the new *S. teucrifolia*, was a segregation from the mixed *S. integrifolia* L. (1753), and he did not mention *S. nervosa* in his account of it. In fact, at the end of his discussion of *S. teucrifolia*, Smith explicitly said: "Mr. Pursh seems not to have recognized this plant. At least we can refer it to none of his species." See discussion under *S. elliptica* at end of this Contribution].—Eastern Pennsylvania to central Ohio, southern Indiana and southeastern Illinois, south in the Piedmont and among the mountains to western North Carolina and eastern Tennessee; also northwestern Louisiana.

*Var. **calvifolia**, var. nov., a var. *typica* recedit foliis supra glabris.—Northern New Jersey to southern Ontario, west to southeastern Iowa, s. on or near the Coastal Plain to Virginia, and in the interior to southern Ohio, southern Indiana and western Tennessee. The following are referred here. NEW JERSEY: Little Falls, Aug. 22, 1889, *Geo. D. Hulst*; rare at foot



Photo. B. G. Schubert.

LERODENDRON CATESBAEI, as usually interpreted: FIG. 1, flowering branch, $\times 1$; FIG. 2, portion of inflorescence, to show acute bracts and calyx-segments, $\times 4$



Photo. B. G. Schubert.

PYCNANTHEMUM MONOTRICHUM, all figs. from TYPE: FIG. 1, plant, $\times \frac{1}{2}$; FIG. 2, leaf, $\times 1$; FIG. 3, venation of back of leaf, $\times 4$; FIG. 4, flower, $\times 5$; FIG. 5, portion of glomerule, $\times 10$; FIG. 6, calyx, $\times 10$

of bluff in woods north of Weston's Mills below New Brunswick, *Mackenzie*, no. 7041; Lambertville, June 2, 1886, *R. E. Schuh*, May 28, 1921, *Mackenzie*; Princeton, 1883, *J. E. Peters*; along Crosswick's Creek, Bordentown, *Long*, no. 10,139. PENNSYLVANIA: along East Swamp Creek, Milford Square, *Long*, no. 34,645; Telford, *Benner*, no. 430½; Rockhill, July, 1882, *Fretz*; West Rockhill, June 6, 1926, *F. H. Stroh*m; near Quakertown, June 3, 1894, *S. Brown*; near Tinicum Creek, Ottsville, *Long*, no. 33,392; Palm, June 18, 1925, *Mary H. Williams*; Sumneytown, May 30, 1903, *Albrecht Jahn*; near Ridge Valley Creek, Finland, *Long*, no. 24,787; Ivy Rock, May, 1894, *S. Brown*, May, 1906, *Long*; Byberry, *Martindale*; Manayunk, *C. E. Smith* and others; Fairmount Park, Philadelphia, *C. E. Smith*; banks of Schuylkill near Philadelphia, July, 1844, *Thurber*; ne. of Friedensburg, *Wilkens*, no. 5526; slope of Wagenhorst Hill, nw. of Kutztown, *Wilkens*, no. 5137; Conewago, May 28, 1889, *Heller*, *Small*, May 29, 1889, *Small*; limestone bluffs on Conestoga, above Lancaster, June 22, 1913, *Long*; Aspinwall, June 8, 1901, *J. A. Shafer*. DELAWARE: near Perry's Tavern, June 12, 1897, *Canby*. MARYLAND: Conowingo, May 30, 1907, *Bartram*, June 24, 1907, *J. J. Carter*. DISTRICT OF COLUMBIA: Insane Asylum woods, in vicinity Washington, May 21, 1879, *L. F. Ward*, May 26, 1889, *Coville*. VIRGINIA: rich sandy and loamy wooded slopes and clearings along Appomattox River, just above the "fall-line", about 2 miles west of Petersburg, May 12, 1940, *Fernald & Long*, no. 11,905 (TYPE in Herb. Gray., ISOTYPE in Herb. Phil. Acad.). ONTARIO: near Kingsville, *J. Macoun*, no. 54,679. OHIO: Florence, Erie Co., 8/7, 1897, *Moseley*; Muskingum, Herb. *Schweinitz*; Columbus, 1837, and 1840, *Sullivan*; "Fernbank"—ad ripas fluminis Ohio, prope "North Bend", *Short*. INDIANA: Seymour, *Pennell*, no. 11,751, *Friesner*, no. 16,774. TENNESSEE: woods along river, Clarksville, *E. J. Palmer*, no. 17,601; bank of Tennessee R., Rockport, *Harger*, no. 7893. ILLINOIS: Tazewell Co., July, 1889, *F. E. McDonald*; Athens, Menard Co., 1861, *E. Hall*; Olney, Richland Co., *E. J. Palmer*, no. 15,585; Madison Co., June, 1877, *Eggert*; St. Clair Co., June, 1877, *Eggert*; near No. 13, Saline Co., *Pepoon & Barrett*, no. 5154. IOWA: Cedar Creek, Stockport, *E. W. Graves*, no. 2052; (In the U. S. Nat. Herb. there is a sheet without locality on the original label, but with an annotation which seems to be "Knobs. Ia. Mohr lg. 1854." The specimens are of the strigose-leaved var. *typica*, such as one expects from the Knobs of Kentucky and Tennessee, but not from Iowa. The disparity in the two handwritings on the label suggests some error).

Var. **ambigua** (Nutt.), comb. nov. *S. ambigua* Nutt. Gen. ii. 37 (1818) not sensu Leonard in Contrib. U. S. Nat. Herb. xxii. 729 (1927). *S. parvula*, var. *ambigua* (Nutt.) Fernald in RHODORA,

iii. 201 (1901) as to basonym only.—See discussion on pp. 172 and 173.

AGASTACHE NEPETOIDES (L.) Ktze. CHARLES CITY Co.: old clearing in dry woods above Chickahominy River, Eagle Bottom, *F. & L.*, no. 11,724. SURRY Co.: rich wooded ravine, northwest of Ingersoll, no. 11,723; rich alluvial thickets back of sand-beach of James River, below Sunken Meadow Beach, no. 8443.

These stations are here cited because, from the most recent map of ranges of *Agastache*, Lint & Epling in *Am. Mid. Nat.* xxxiii. map 1, p. 213 (1945) one is likely to assume that the species is not in southeastern Virginia—the map showing an eastern boundary from near Washington southwestward across western Virginia, more than 200 miles west of Surry County.

*GLECHOMA HEDERACEA L., forma ACUTILOBA Neuman. The form with sharp-toothed leaves. SURRY Co.: roadside bank about 3 miles southwest of Surry Courthouse, no. 13,127.

*PYCNANTHEMUM **monotrichum**, sp. nov. (TAB. 903), planta habitu *P. aristato* simillima; caule puberulo 0.8–1.2 m. alto ramulis elongatis deinde floriferis; foliis ovatis vel ovato-lanceolatis acuminatis viridibus serrato-dentatis, majoribus 4–5.5 cm. longis, 2–3 cm. latis, venis lateralibus 5–8-jugis venis superioribus supra medium laminae exortis; dentibus calycis lanceolato-aristatis subaequalibus 2.5–3 mm. longis, plerumque trichoma longum flexuosum multicellare infra apicem gerentibus.—Dry sandy woods and clearings, southeastern VIRGINIA; northeast of Homeville, Sussex County, July 20, 1936, *Fernald & Long*, no. 6380 (TYPE in Herb. Gray.; ISOTYPE in Herb. Phil. Acad.); Kilby, Nansemond County, September 11, 1935, *Fernald, Long & Fogg*, nos. 5023, 5024 and 5025; all distributed as *P. clinopodioides* T. & G.

As noted, *Pycnanthemum monotrichum* (from the usually solitary long trichomes near the tips of the calyx-teeth) was distributed as *P. clinopodioides*. That was on account of the long flexuous bristle just referred to; but its calyx is nearly regular, with essentially uniform teeth, all 2.5–3 mm. long, whereas *P. clinopodioides* has the calyx definitely bilabiate, with the longer (lower) and merely acuminate (instead of aristate) teeth only 1–1.5 mm. long, while its leaves are membranaceous, those of *P. monotrichum* subcoriaceous. Grant & Epling have labelled all the specimens as a probable hybrid of *P. hyssopifolium* Benth. and *P. Tullia* Benth. (i. e. *P. pycnanthemoides* (Leavenw.) Fern., the name required by the International Rules but which Grant and Epling refuse to take up¹). Just why it should be called such

¹ Dr. Epling rejects the name required by the International Rules, *Pycnanthemum*

a hybrid (see Grant & Epling, *Study of Pycnanthemum*, Univ. Calif. Pub. Bot. xx. no. 3: 234 (1943)) I do not know and such a disposition of it would certainly be better supported if the plant grew within flying-distance for bees of *P. pycnanthemoides*! *P. monotrichum* occurs in acid sandy woods of the Coastal Plain, near where both *P. hyssopifolium* and *P. setosum* Nutt. (see note at end of discussion, p. 178) are found, but the only station in Virginia cited by Grant & Epling for true *P. pycnanthemoides* (*P. Tullia*), on their p. 211, is in Patrick County at the base of the Blue Ridge, 150 miles west of the westernmost station for *P. monotrichum*, altogether too long a flight for the pollen-carrying bee!¹ Their most eastern station in North Carolina (Durham County) is, to be sure, a little nearer, only 115 miles away, but even that would require a tremendous relay of bees to carry the necessary pollen-grain.

If *P. monotrichum* had been called a hybrid of *P. pycnanthemoides*, var. *viridifolium* Fern. in RHODORA, xxxix. 445 (1937), our PLATE 904, the relay of bees required would be less, but this plant, type from the inner Coastal Plain in Greensville County, Virginia, is treated by those authors as one of their so-called species, *P. viridifolium* (Fern.) Grant & Epling, l. c. (1943), which, in spite of the type-station on the Coastal Plain, is said in their key (p. 203) to be "plants of the Appalachian Mountains from Virginia and West Virginia to Alabama", not a significant morphological character. But even so, *P. pycnanthemoides*, var. *viridifolium* (PLATE 904) is a plant of richer, basic to calcareous soils and its nearest stations to *P. monotrichum* are too far away (18–35 miles) to make the guess very plausible. Incidentally, *P. pycnanthemoides* and its var. *viridifolium* would scarcely suggest themselves as related to *P. monotrichum* to those who know the plants. Besides the very large leaves and outer bracts and broad open inflorescences, with multicellular flexuous trichomes very numerous on calyx-teeth and inner bracts, *P.*

pycnanthemoides, presumably because it seems meaningless. Would he carry this philosophy so far as to exclude *Arctostaphylos Uva-ursi* (*Arctostaphylos* being the Greek, *Uva-ursi* the Latin for bearberry), *Clethra alnifolia* (*Clethra* the ancient Greek equivalent of the Latin *Alnus*) and all others in which the trivial repeats the meaning of the generic name?

¹ Although radio-listeners have for several years gained the impression that "*The Flight of the Bumblebee*" is never ending, the flights of that busy individual are actually limited in extent, rarely two miles I am told.

pyncnanthemoides and its variety have the calyx strongly bilabiate; and, as originally illustrated and described by Leavenworth, when he set up the genus *Tullia* with a single species, the corolla is very large for the genus, deep pink to purple and with the lateral lobes of the lower lip spreading-ascending. Unfamiliar with such striking field-characters, the recent monographers of *Pyncnanthemum* made nothing of the large purple to deep pink corolla! In brief, *P. monotrichum*, with its nearly regular calyx, mostly solitary long trichomes on the aristate calyx-teeth, small whitish corollas, etc., shows no more influence of *P. pyncnanthemoides* (or *Tullia*) than do *P. hyssopifolium* and *P. setosum*, i. e. none at all.

P. monotrichum seems to be a definite species of the sandy Coastal Plain. Although with broad foliage somewhat suggesting that of *P. setosum*, it differs in several characters from it. It is generally taller, its leaves are more ovate and acuminate, sharply serrate-dentate, its calyx-teeth 2.5–3 mm. long and usually with a subterminal divergent long trichome, the calyx-teeth of *P. setosum* (PLATE 905, FIG. 4) 1.3–2.5 mm. long and without the long trichome. In some characters *P. monotrichum* is as near *P. hyssopifolium* (PLATE 905, FIGS. 1–3), but that species is grayish in tone, not full green, commonly with many short and suppressed axillary branches, instead of elongate and finally flowering ones; its entire or subentire leaves are narrowly oblong to oblong-lanceolate or -linear, blunt, at most 0.5–1.5 cm. broad and with the uppermost of the 3–5 pairs of lateral veins arising at or below the middle of the blade (in *P. monotrichum* the serrate-dentate, ovate, acuminate leaves mostly 2–3 cm. broad, the uppermost of the 5–8 pairs of lateral veins borne well above the middle of the blade). In *P. hyssopifolium* the bristleless calyx-teeth are 2.3–5 mm. long; in *P. monotrichum* the usually bristle-tipped teeth only 2–3 mm. long.

The name *Pyncnanthemum setosum* Nutt. in Journ. Acad. Phil. vii. 100 (1834) must, under the International Rules, replace *P. aristatum* Michx. Fl. Bor.-Am. ii. 8, t. 33 (1803). There is no question about the plant clearly described and illustrated by Michaux but, unfortunately, he cited as an unquestioned synonym of it *Nepeta virginica* L. (1753). That being his interpretation, he should have used the earlier specific name, for it had



Photo. B. G. Schubert.

PYCNANTHEMUM PYCNANTHEMOIDES, var. VIRIDIFOLIUM, all figs. from TOPOTYPE: FIG. 1, portion of inflorescence, $\times 1$; FIG. 2, portion of glomerule, with corolla, $\times 8$

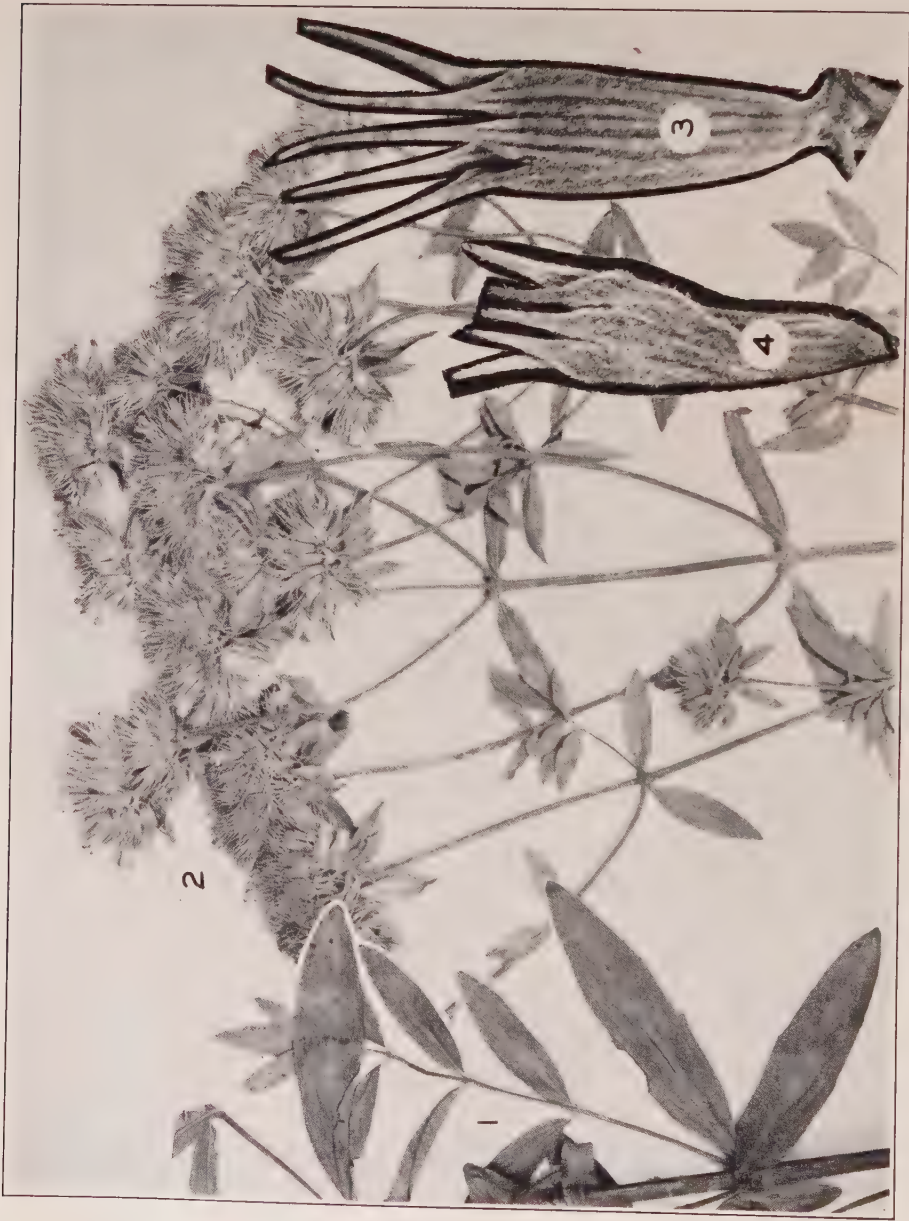


Photo. B. G. Schubert.

PYCNANTHEMUM HYSSOPIFOLIUM: FIGS. 1 AND 2, foliage and inflorescence, $\times 1$; FIG. 3, calyx, $\times 10$
P. SETOSUM: FIG. 4, CALYX, $\times 10$

not then been used under *Pycnanthemum*. Under the International Rules the name *P. aristatum* is illegitimate.

**P. umbratile*, sp. nov. (TAB. 906), a *P. clinopodioides* differt caule arcuato-pilosis nec divergente villosis; foliis ovatis obtusis viridibus integris vel subintegris basi late rotundatis subtus ad costas sparse puberulis, majoribus 2.5–3.5 cm. latis; corymbis terminalibus hemisphaericis bracteis externis foliaceis ellipticis vix reductis; bracteis internis breviter hirtellis; calycibus bilabatis dentibus apice subulatis breviter hirtellis.—VIRGINIA: border of rich bottomland woods along Blackwater River, southeast of Ivor, Southampton County, September 16, 1937, *Fernald & Long*, no. 7595 (TYPE in Herb. Gray.).

Pycnanthemum umbratile (from the deep shade of its type-station) has been only once collected. The type, snatched at the end of the day, was found upon study to be unique in another sense. When we later returned for more of it, the road-machinery had done its work. Soil to the depth of several feet had been removed for use in construction of the neighboring 4-lane trunk-road and the station obliterated. The plant, obviously, will later be found elsewhere on the wooded bottomland where abound many other rather local species. I do not hesitate to describe the unicate, for it is very distinctive. By current treatments it would be placed with *P. clinopodioides* T. & G. The distinctions are as follows. In *P. clinopodioides* (PLATE 907) the short curving hairs of the stem are mixed with longer spreading trichomes; in *P. umbratile* the long and spreading hairs are wanting. *P. clinopodioides* has the pale green leaves lance-acuminate, tapering gradually to the petiole and often with sharp serrations, with the veins beneath hirtellous, the primary blades only 1–2 cm. broad; *P. umbratile* has the full green leaves oval, bluntish, essentially entire, broadly rounded to the petiole, and barely puberulent on the midrib beneath, the larger blades 2.5–3.5 cm. broad. In *P. clinopodioides* the glomerules terminate the branches or are verticillate; in the type of *P. umbratile* there is a single terminal, open corymb. In *P. clinopodioides* the calyx-teeth are appendaged near their tips, like the inner bracts, by long, flexuous, divergent multicellular trichomes; in *P. umbratile* these long trichomes are lacking. Until fuller material is at hand distinctions in the flowers cannot safely be stated.

P. INCANUM* (L.) Michx., var. **puberulum (Grant & Epling), stat. nov. *P. puberulum* Grant & Epling in Univ. Calif. Pub. Bot. xx. no. 3: 212 (1943). Described from Florida and Alabama, northward into North Carolina and West Virginia. Virginia now comes into the range. BRUNSWICK Co.: rich wooded bluff by Meherrin River at Westward Bridge (or Mill), no. 14,738. See p. 100.

PLATE 903, *PYCNANTHEMUM MONOTRICHUM* Fernald, all figs. from the TYPE: FIG. 1, plant, $\times \frac{1}{2}$; FIG. 2, leaf, $\times 1$; FIG. 3, back of leaf, to show venation, $\times 4$; FIG. 4, portion of glomerule, to show flower, $\times 5$; FIG. 5, portion of glomerule, to show bristles, $\times 10$; FIG. 6, calyx, $\times 10$.

PLATE 904, *P. PYCNANTHEMOIDES* (Leavenw.) Fernald, var. *viridifolium* Fernald: FIG. 1, portion of inflorescence, $\times 1$, of TOPOTYPE, *Fernald & Long*, no. 11,130; FIG. 2, portion of glomerule, to show flower and bristle-tipped calyx-segments, $\times 8$, from no. 11,130.

PLATE 905, FIGS. 1-3, *P. HYSSOPIFOLIUM* Benth.: FIGS. 1 and 2, foliage and inflorescence, $\times 1$, from southwest of Cypress Bridge, Southampton Co., Virginia, *Fernald & Long*, no. 6374; FIG. 3, calyx, $\times 10$, from no. 6374. FIG. 4: *P. SETOSUM* Nutt.: calyx, $\times 10$, from Forked River, New Jersey, Sept. 3, 1893, *MacElwee*.

PLATE 906, *P. UMBRATILE* Fernald, all figs. from TYPE: FIG. 1, summit of plant, $\times 1$; FIG. 2, portion of stem, to show curving pubescence, $\times 10$; FIG. 3, lower surface of leaf, to show pubescence, $\times 10$; FIG. 4, calyx, $\times 10$.

PLATE 907, *P. CLINODIOIDES* Torr. & Gray: FIGS. 1 and 2, portions of plant, $\times 1$, from Rye, New York, *Asa Gray*; FIGS. 3, portion of stem, and 4, lower surface of leaf, to show pubescence, $\times 10$, from the STANDARD SPECIMEN, New Jersey, 1841, *Carey*; FIG. 5, calyx, $\times 10$, from Palisades, New Jersey, 1860, *C. F. Austin*.

LYCOPUS AMERICANUS Muhl., var. *LONGII* Benner. Local range extended back into the outer Piedmont. BRUNSWICK Co.: springy sphagnum and argillaceous bog, Ram-hole Swamp, Seward Forest, near Triplett, no. 14,740. See p. 103.

Var. *Longii* has been accredited an inland occurrence about the Great Lakes. It is, however, apparently confined to the Atlantic Coastal Plain and its intrusions into the Piedmont. The plant of the Interior is

LYCOPUS AMERICANUS Muhl., var. **scabrifolius**, var. nov., internodiis supernis villosis, villis multicellulis; foliis bracteatis lineari-lanceolatis superne scabro-puncticulatis.—Southern Michigan to Illinois, south to Louisiana and Texas. TYPE: wet sandy prairie, Havana, Illinois, August 15, 1903, *H. A. Gleason* in Herb. Gray.

Var. *scabrifolius*, at least of northern Indiana, as well as northern Ohio plants which I have not seen, was originally included in the Coastal Plain *L. americanus*, var. *Longii* Benner in Barton, no. 16: 46 (1934). The latter plant, occurring from Long Island, New York, to eastern Virginia, has the upper



Photo. B. G. Schubert.

PYCNANTHEMUM UMBRATILE, all figs. from TYPE: fig. 1, summit of plant, $\times 1$; FIG. 2, portion of stem, $\times 10$; FIG. 3, lower surface of leaf, $\times 10$; FIG. 4, calyx, $\times 10$



Photo. B. G. Schubert.

PYCNANTHEMUM CLINOPODIOIDES: FIGS. 1 and 2, portions of plant, $\times 1$; FIG. 3, portion of stem, $\times 10$; FIG. 4, lower surface of leaf, $\times 10$; FIG. 5, calyx, $\times 10$

surfaces of the leaves smooth and not puncticulate. All the material I have seen from Michigan, Indiana, Illinois, Oklahoma, Louisiana and Texas has the upper surfaces harsh with minute crowded point-like trichomes. It seems to be a more inland and western extreme. Whether the gap in the representation in the Gray Herbarium—between Indiana and Illinois at the north and Oklahoma and Louisiana at the south—is to be overcome by collections from western Kentucky, western Tennessee and Missouri, must depend upon further collecting.

DICLIPTERA BRACHIATA (Pursh) Spreng. To the single recorded Virginian station (bottomland of Meherrin River at Haley's Bridge, Southampton Co.) add an extensive one about 30 miles inland (much more as the river flows) farther up the valley. BRUNSWICK Co.: wooded bottomland of Meherrin River at Westward Bridge (or Mill), no. 14,741. See p. 100.

**RUELLIA PURSHIANA* Fernald in *RHODORA*, xlvii, 27, t. 845 and t. 846, fig. 3 (1945).—Stations cited in FREDERICK, ROCKINGHAM, ROCKBRIDGE, BOTETOURT, WASHINGTON, ROANOKE, AMELIA and HENRICO Cos.

**R. PURSHIANA*, forma *CLAUSTROFLORA* Fernald, l. c. 29, t. 846, figs. 1 and 2 (1945).—Cited from ROCKBRIDGE Co.

**R. HUMILIS* Nutt. (typical). See Fernald, l. c. 52, tt. 854 and 855 (1945).—Cited from GILES Co.

**R. HUMILIS*, var. *FRONDOSA* Fernald, l. c. 54, t. 857 (1945).—Cited from SHENANDOAH and WYTHE Cos.

**R. HUMILIS*, var. *CALVESCENS* Fernald, l. c. 60, t. 860 (1945).—Stations in FREDERICK and SHENANDOAH Cos.

**R. CAROLINIENSIS* (Walt.) Steud., var. *SEMICALVA* Fernald, l. c. 73, t. 864 (1945).—Type from SOUTHAMPTON Co.

R. CAROLINIENSIS, var. *MEMBRANACEA* Fernald, l. c. 76, tt. 865 and 866 (1945).—The common plant which has passed, erroneously, as *R. parviflora*, *R. ciliosa* or *R. carolinensis*. Cited from FAIRFAX, ALEXANDRIA, NORTH, MIDDLESEX, MATHEWS, GLOUCESTER, YORK, JAMES CITY, CHARLES CITY, PRINCESS ANNE, NORFOLK, ISLE OF WIGHT, SURRY, SOUTHAMPTON, SUSSEX, GREENSVILLE, DINWIDDIE, AMELIA, BRUNSWICK, CAMPBELL, BEDFORD and ROCKBRIDGE Cos.

**R. CAROLINIENSIS*, var. *MEMBRANACEA*, forma *HYPOPSILA* Fernald, l. c. 78, t. 867, figs. 1-3 (1945).—Recorded from ELIZABETH CITY, NORFOLK, SURRY, SOUTHAMPTON and SUSSEX Cos.

**R. CAROLINIENSIS*, var. *MEMBRANACEA*, forma *LAEVIOR* Fernald, l. c. 79, t. 868 (1945).—Recorded from SOUTHAMPTON, GREENSVILLE and AMELIA Cos.

**R. CAROLINIENSIS*, var. *NANELLA* Fernald, l. c. 79, tt. 869 and 870, fig. 1 (1945).—Cited from NANSEMOND and PRINCESS ANNE Cos.

**R. CAROLINIENSIS*, var. *NANELLA*, forma *ECILIATA* Fernald, l. c. 80, t. 870, figs. 2-4 (1945).—Cited from SOUTHAMPTON and SUSSEX COS.

**R. CAROLINIENSIS*, var. *CHELONIFORMIS* Fernald, l. c. 80, tt. 871 and 872 (1945).—Recorded from CLARKE, NORTHAMPTON, GLOUCESTER, ELIZABETH CITY, JAMES CITY, PRINCESS ANNE, NORFOLK, DINWIDDIE, MECKLENBURG and HALIFAX COS.

**R. CAROLINIENSIS*, var. *CHELONIFORMIS*, forma *candida*, f. nov., corollis albidis.—Brunswick Co., VIRGINIA: Triplett, 1945, *J. B. Lewis* (TYPE in Herb. Gray.).

**R. CAROLINIENSIS*, var. *DENTATA* (Nees) Fernald, l. c. 83, tt. 874 and 875 (1945).—Cited from FAIRFAX, JAMES CITY, HENRICO, PRINCESS ANNE, NORFOLK, ISLE OF WIGHT, SUSSEX, HALIFAX and ORANGE COS.

(To be continued)

NOTES ON THE COMPOSITAE OF THE NORTH-EASTERN UNITED STATES. I. INULEAE

ARTHUR CRONQUIST

IN the course of preparing a treatment of the *Compositae* for the new illustrated flora of the northeastern states, it becomes necessary to make a number of new combinations. These, with such comments as may seem desirable, will be published in advance. It is intended that automatic tautonyms, without citation, be used in the flora for nomenclaturally typical intra-specific units. Such of these as do not conflict with previously published names of the *typica* category will be validated in this series of papers.

In this work, as in previous work with certain western and southern groups, it is noteworthy how often I have been forced to return to a treatment approximating that of Asa Gray in the Synoptical Flora. In several instances in which the past 60 years have seen a marked increase in the number of generally accepted species, I have been unable to recognize or delimit satisfactorily the major part of the recent segregates. Such a case is furnished by *Antennaria*. Gray disposed of all our *Antennarias* as one variable species, *A. plantaginifolia*. Experience has shown this treatment to be too conservative, but even so it is more satisfactory than the treatments now in vogue. The chaotic condition which has been brought about in some Euro-

pean genera that also show well-developed apomixis, such as *Hieracium*, should give pause to those who have so multiplied our species. As Stebbins has shown (Bot. Gaz. **94**: 134–151. 1932; RHODORA **37**: 236. 1935), the sexual forms of the large-leaved and small-leaved eastern *Antennarias* hybridize, but the offspring show cytological irregularities and reduced fertility. These two groups thus behave about as we would expect two closely related but distinct species to do. Our plants may be segregated fairly readily into large-leaved and small-leaved forms (*A. plantaginifolia* and *A. neglecta*), although with some overlapping. The further segregation from *A. plantaginifolia* of the single-headed southern plant with certain habital peculiarities, *A. solitaria*, leaves us with three fairly well-marked species. The first two of these are highly variable, and may be separated into more or less evident varieties, although the distinctions sometimes become entirely arbitrary. I do not deny that some of these varieties may seem distinct in restricted areas, but when the whole region is considered the segregation becomes too dependent on temporary whim, or at best on individual opinion, to justify specific recognition. This should cause no surprise, since Fernald has pointed out (RHODORA **38**: 231. 1936) that certain groups which are largely apomictic in some areas are frequently sexual in others.

ANTENNARIA PLANTAGINIFOLIA (L.) Richards. var. **plantaginifolia** Cronquist, nom. nov. *A. plantaginifolia* (L.) Richards. App. Frank. Journ. ed. 2. 30. 1823. *Gnaphalium plantaginifolium* L. Sp. Pl. 850. 1753, sens. strict. Basal leaves tardily glabrate above; pistillate involucre mostly 5–7 mm. high.

A. PLANTAGINIFOLIA (L.) Richards. var. **ambigens** (Greene) Cronquist, comb. nov. *A. arnoglossa* Greene var. *ambigens* Greene, Pitt. **3**: 320. 1898. *A. fallax* Greene, Pitt. **3**: 321. 1898. Basal leaves tardily glabrate above; pistillate involucre mostly 7–10 mm. high.

A. PLANTAGINIFOLIA (L.) Richards. var. **arnoglossa** (Greene) Cronquist, comb. nov. *A. arnoglossa* Greene, Pitt. **3**: 318. 1898. *A. Parlinii* Fern. Gard. & For. **10**: 284. 1897. *A. Parlinii* var. *arnoglossa* Fern. Proc. Bost. Soc. Nat. Hist. **28**: 243. 1898. Basal leaves glabrous above nearly or quite from the first; pistillate involucre mostly 7–10 mm. high.

A. NEGLECTA Greene var. **neglecta** Cronquist, nom. nov. *A. neglecta* Greene, Pitt. **3**: 173. 1897, sens. strict. Basal leaves tardily glabrate above; stolons long, procumbent, with small and

often few leaves; basal leaf-blades tending to taper gradually to the base; pistillate involucre mostly 7–10 mm. high.

A. NEGLECTA Greene var. **Randii** (Fern.) Cronquist, comb. nov. *A. canadensis* Greene var. *Randii* Fern. Proc. Bost. Soc. Nat. Hist. **28**: 247. 1898. *A. canadensis* Greene, Pitt. **3**: 275. 1898. Basal leaves glabrous above nearly or quite from the first; leaves and stolons variable; pistillate involucre mostly 7–9 mm. high.

A. NEGLECTA Greene var. **attenuata** (Fern.) Cronquist, comb. nov. *A. neodioica* Greene var. *attenuata* Fern. Proc. Bost. Soc. Nat. Hist. **28**: 245. 1898. *A. neodioica* Greene, Pitt. **3**: 184. 1897. Basal leaves tardily glabrate above; pistillate involucre mostly 7–10 mm. high; stolons relatively short and leafy, merely decumbent; basal leaf-blades tending to be abruptly contracted to the petiole-like base.

A. NEGLECTA Greene var. **gaspensis** (Fern.) Cronquist, comb. nov. *A. neodioica* Greene var. *gaspensis* Fern. Ottawa Nat. **19**: 156. 1905. Similar to var. *attenuata*, but the leaves much smaller, not over 5 mm. wide, and generally narrower in shape.

A. NEGLECTA Greene var. **argillicola** (Stebbins) Cronquist, comb. nov. *A. virginica* Stebbins var. *argillicola* Stebbins, RHODORA **37**: 232. 1935. *A. virginica* Stebbins, RHODORA **37**: 230. 1935. Similar to var. *attenuata*, but smaller in all parts, the pistillate involucre mostly 5–7 mm. high.

All of the varieties of the two preceding species, as I have delimited them, occur nearly or quite throughout our range, except for var. *gaspensis* and var. *argillicola*. The former is limited to the Gaspé region, the latter to the mountains of Virginia and adjacent areas. It is to be understood that the Antennarias of Newfoundland are excluded from consideration in the foregoing discussion.

PLUCHEA PURPURASCENS (Sw.) DC. var. **purpurascens** Cronquist, nom. nov. *P. purpurascens* (Sw.) DC. Prodr. **5**: 452. 1836, sens. strict.

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